Unjust mobilities: The case of rickshaw bans and restrictions in Dhaka

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Declaration

I, Md Musleh Uddin Hasan, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

……..
1st December, 2013

"গাহি সাম্যের গান,

মানুষের চেয়ে বড় কিছু নাই, নহে কিছু মহীয়ান ।"

-বিদ্রোহী কবি কাজি নজরুল ইসলাম (১৮৯৯-১৯৭৬)

"I do sing the song of fairness, justice and equity,

Nothing is greater and superior than humanity"

-Rebel poet Kazi Nazrul Islam (1899-1976)

(Translation from Bangla by the author)

Dedicated to

Tasmiyah (born in January 2013), her near and dear ones,
Shimul apa (departed in January 2013) and
Khalu abba (departed in December 2013)

Abstract

Planning mobilities in contemporary cities, particularly in developing countries, increasingly focuses on promoting motorised transport (MT) at the expense – side-lined if not banned – of non-motorised transport (NMT). As NMT serves the needs of a range of users, decisions of this kind are highly politicised favouring some forms of mobility, and interest, over others; this raises concerns about justice in access to transport. To planners and decision-makers the question of *just mobilities* - a concept developed in this research combining literature mainly on social justice and *mobilities* - poses a range of challenges: equitable *distribution* of direct/indirect benefits and burdens, fair *process* of decision making and execution in introduction or restriction/ban of any given transport mode or infrastructure, justification of motivations in *political* terms. Apart from redressing weakness in sustainability studies on mobility and transport, the proposition provides a broader framework to look into the *distribution* of existing and potential human *mobilities*, *process* and associated motivations (*politics*). The framework is used to explore the impact of a planning intervention – rickshaw bans/restrictions in Dhaka, Bangladesh - on the users at household level. Around one million rickshaws – a human pedalled tri-cycle usually carrying two persons – shared more than one-third of the total of 19.58 million trips in Dhaka in 2009. The volume of passengers transported (7.6 million person-trips/day in 2009), is equally astonishing; close to double the highest number of passengers (4.4 million) carried by London Tube in a single day during the 2012 Olympics. Yet in the name of increasing mobility rickshaws are being restricted/banned in Dhaka roads, particularly since 2002. The study hypothesis is that the withdrawal of rickshaws from the roads is a manifestation of *unjust mobilities* in the (transport) planning; devised by biased studies and plans, and fuelled by vested motivations. While short and medium distance travellers, women, school going children and their guardians, aged and sick members of the household and non-work activities are adversely affected by the decision; long distance activities, work trips and car-users are benefitted. This research also reveals a cross-sectoral, informal and productive global to local coalition against NMT in an uneven geography of power relations and multiple interests; which is also contextual and relevant to cities in developing countries in Asia and elsewhere in the globe. Apart from reviewing a broad range of theoretical and empirical literature, the research collected information on individual and household mobility patterns, on the effects of the ban/restriction and on potential modal options and preferences using a combination of questionnaire surveys, semi-structured interviews and focus group discussions.

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Finally, thanks to the Almighty that I have a wonderful family- Tasmiyah, my daughter- born in this year, her mother, grand-parents, great grand-parents, uncles and aunts. My mother, my best teacher- who in my school days taught me what I know now as literature review, has been a constant source of strength; my father, my mentor- who always teaches to remain stick to values and honesty, has been a constant source of inspiration; Elora has been a constant guide, sharing and bearing partner. I remember my grandfather-*Nana*, saying me "cannot you do something for the homeless and slum people?" I feel, at least, the broader theme of this research will make him happy. I know Parvez, Fahim, Tanin, Eric, Nawreen, Mangifa, Jeenia and cousins will have a 'silent' joy, as I am finishing. I am happy that the ever-well-wishing *Baba* and *Ma* will be relieved. I remember my uncles, aunts and cousins who in my childhood taught me letters, numbers, how to read dial-based table clock, what is school 'examination'.

Hopes and happiness are all around; yet I am getting concerned if my research would be effectively used for any change in the 'unjust mobility' experience of those who were interviewed and surveyed during my field study. So, I coin the words from the Prophet (peace be upon him): "*O Lord, give me knowledge that is of use and benefit*".

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List of abbreviations and acronyms

ADB- Asian Development Bank

BBS- Bangladesh Bureau of Statistics

BGB- Border Guards Bangladesh

BRTA- Bangladesh Road Transport Authority

BRTC- Bangladesh Road Transport Corporation

CASE - Clean Air and Sustainable Environment

CBA- Cost Benefit Analysis

CNG- Compressed Natural Gas (CNG) fuelled motorised three-wheeler

DITS- Greater Dhaka Metropolitan Area Integrated Transport Studies; popularly known as Dhaka Integrated Transport Study

DCC- Dhaka City Corporation

DMDP- Dhaka Metropolitan Development Plan

DMP- Dhaka Metropolitan Police

DUTP- Dhaka Urban Transport Plan

EJ- Environmental Justice

FFT- Fuel Free Transport

FGD- Focus Group Discussion

HH - Household

JICA- Japan International Cooperation Agency

MT- Motorised Transit/Transport

MV- Motorised Vehicle

NMT- Non Motorised Transit/Transport

NMPT- Non motorised Public Transport

NMV- Non motorised Vehicle

RAJUK- Rajdhani Unnayan Kartripakha (Capital Development Authority)

STP- Strategic Transport Plan

Tk- Taka, the currency of Bangladesh

UJ- Urban Justice

WB- World Bank

List of conversions

GBP 1 = Tk 115.85*,
US$ 1 = Tk 77.75*.
* As per http://www.xe.com as on the 7th July 2013
1 sq. metre = 10.75 sq. ft

Chapter 1
Introduction to the research

1.1 Introduction

This chapter briefly introduces the research that questions the bans/restrictions of the rickshaws and explores the answer(s) based on the *just mobilities* framework developed in this research. Problematising the issue of mobility - due to repeated incidences of rickshaw bans and restrictions in Dhaka since 2002 - from the perspective of social justice, it introduces the *just mobilities* framework for planning urban transport. A short note on the growth of Dhaka city is provided followed by a description of the roads and modes in the city and the state of mobility therein. Drawing attention to the importance of rickshaw - a non-motorised transport (NMT) mode - in Dhaka this chapter sets forth the study: hypothesis and objectives and research questions. Lastly, delimiting the scope and limitations of this study and outlining the organisations of chapters in the dissertation, this chapter finishes with a brief introduction to several repeatedly used operational terms in the research.

1.2 Statement of the problem

In modern times mobility is a powerful discourse creating its own effects and contexts (Hannam *et al*., 2006:1) in multiple disciplines, places, scales and hierarchies. The multiplicity and transformations in the nature of connections and movement over time and space have been pivotal in the formulation of a "new mobilities" paradigm (Sheller & Urry, 2006a), where the singularity of mobility is replaced by the term *mobilities* to encompass huge and hurried human and non-human (objects, capital, information) movement and flows. Along with existing *mobilities*, Kaufmann *et al*. (2004) and others have looked into the problems and possibilities of *mobilities* from the perspective of potential movement as well and thus have increased another layer of critical investigation.

Understanding the ways in which *mobilities* intersect with people, place, pace and mode, is complex as they are overlapped by aspects and contexts involving policy, politics and process of distribution of benefits and cost of *mobilities* over space, society and

environment. Cities grew historically as the places of business and people used to flock them from local and global distances. Ultimately many started residing there to access better facilities at/with better *mobilities*. So, cities are practised for the movements of its citizens, goods, information, ideas and images (Amin & Thrift, 2002; Urry, 2007) and planned and developed for all possible sorts of *mobilities*.

Mobilities are also a basic condition in the social order (Kesselring, 2006) with socio-politico-economic, technological and ecological connections. Technological, social and cultural developments are rapidly changing the "nature of travel and of communications conducted at-a-distance" (Hannam *et al*., 2006:4). The changes are most commonly vivid and comprehensible to common people in daily experiences in an urban scale than supra-urban levels- as many people do not have experience of *mobilities* in those levels. Of course, the mode of human transportation is a factor in generating and guiding *mobilities.* But growth (and decline) of land uses, business (and human interest therein) and environment are also important. Therefore, urban *mobilities* both affect and are affected by factors like the provision of transportation modes and infrastructures; urbanisation, urban growth and development; varieties in demand, abilities, livelihood pattern, gender and social roles of the users; motivations of the decision makers and other stakeholders behind their choices and priorities; and associated effects and externalities: social, economic and environmental.

Thus planning and provisioning of *mobilities* is a tension among multiple sectors and objectives and poses planning challenges in the area that is termed as the "planners' triangle" (Campbell, 1996). Citizens who will be using the different modes to access their daily and other destinations may not be equally mobile within the same transportation system nor do all the modes have the same economic or ecological effects. The question and contestation regarding (mal)distribution of opportunities like mobility started to surface more rapidly and severely after the invention of the motor car in the early twentieth century. Since then striving for motorised mobility[1] is manifested in a push for growth and speed in a period termed as "the age of irresponsibility" (Jackson, 2009:17). The role of non-motorised transport modes has been denied in developed countries until

[1] Over 1 billion cars have been manufactured in the last century (Urry, 2006). At the end of twentieth century 700 million cars were roaming the world in end of the last century (Shove, 1998 quoted in Urry, 2006) with an expected three times increase in car travel between 1990 and 2050 (Hawken, *et al.*, 1999, quoted in Urry, 2006).

recently; in developing countries the negligence is still continuing along with the denial of their right to ply and stay even on the road in many cases.

However concerns are being raised regarding auto-mobility. Studies show several drawbacks associated with auto-mobility: a finite ecological limit (Jackson, 2009; Davenport & Davenport, 2006), a failure to appraise and appreciate aesthetics and architecture along with economic and financial costs and destruction of ecological and built landscape (Freund & Martin, 1993). Benefits of shifting from car to physically active transport includes better health and reduced medical cost, reduction in pollution, carbon emission, accident fatalities, noise, congestion etc (Rabl & de Nazelle, 2012). Also important is the concern for equality in development. It has been observed that inequality causes social failure despite material success and a fair society is an essential part of our well being (Wilkinson & Pickett, 2010). Sen (2001, 1999, 1995), Nussbaum and Glover (1995) and other scholars have shown that equal and fair access to social, economic and political activities and opportunities paves the way for people to attain their entitled capability and reap the fruits of freedom: "certain crucial instrumental freedoms, including *economic opportunities, political freedoms, social facilities, transparency guarantees and protective security*" (Sen, 2001:XII, italic in the original).

Yet, looking for justice in planning mobilities is a challenge. In general the strive for equity remains low on the policy agenda in many countries as it often requires working against the interests of national elites, challenging vested interests or dominant ideologies, or speaking for people who are excluded and ignored systematically by those making policy (Jones, 2009) in the name of 'rationality' (Flyvberg, 1998). Limited focus on equity can be attributed to both domestic and international power imbalances requiring a change in political economy (Jones, 2009) as the car has become central to the organisations of capitalism and deeply embedded in individual identities (Paterson, 2007). Identification of stakeholders is also important as "power is everywhere" and "comes from everywhere" (Foucault 1998:63) in several forms and nature including informality, defined as 'extra-legality' (Roy, 2009; Roy & AlSayyad, 2004).

Apart from the dimension of power and politics, providing *mobilities* within an urban system is a dilemma: where to find a balance among social equity, economic growth and

environmental sustainability; how; and why. To the professionals like planners the question of *just mobilities* is a practical concern with respect to equitable *distribution* (of access to means of and options for *mobilities*, externalities produced) by fair *process* (of introduction or restriction/ban of any transport mode) with logical and ethical motivation (*politics*).

The concept of *just mobilities*, developed and applied in this research, provides a broader framework to the planners to answer three *mobilities* related questions: (i) where? i.e. *distributional* contexts, (ii) how? i.e. plan, policy and *process*, and lastly, (iii) why? i.e. *politics* and motivation. Theoretically, *mobilities* relate to where and how, and justice relates to where, how and why. Moreover, the politics of mobility itself has an urban (where), processual (how) and motivational (why) basis to exist and work. The framework is applied to explore the impact of a single planning intervention- rickshaw[2] bans/restrictions[3], in the urban transport system in Dhaka, Bangladesh.

Dhaka, a megacity, is one of the fastest growing cities in the world and is featured by almost all possible mobility related problems usually seen in the cities in developing countries. As motorisation is low and public transport is barely developed, rickshaws have a vital role in carrying millions of Dhaka citizens; more than one-third of trips are rickshaw based (JICA, 2010; STP 2005a). In such a context, 1.1 million (Daily Star, 2012) rickshaws play a vital role in urban mobility in Dhaka (see Appendix G, Photographs). Rickshaws are like taxis to most of the users, personal vehicles to those who arrange contact with the rickshaw-drivers, locally called *rickshaw-walla,* to carry them or their children to and from school and other regular destinations, para-transits to fill the vacuum due to no modal integration in local or collector roads to catch public transport, taxis, three wheelers (popularly known as CNGs[4]). They also carry 5% of freight in the city (DITS, 1994a:43) and employ half a million poor directly as *rickshaw-walla*. Moreover, rickshaws are well suited to the densely built-up Dhaka City Corporation (DCC) area (Kalabamu, 1987; Majumder, *et al*., 2009).

[2] A non-motorized, fuel free, human pedalled tri-cycle usually carrying two persons

[3] Although ban represents a complete ban of rickshaws in the road and restriction means ban of rickshaws in intersection, crossing intersection or partial restriction along a segment of road or in a direction, ban and restriction has been used invariably as ban/restriction in this study. Moreover the plurality of ban and restriction refer to several incidences in several stages or time since 2002 in Dhaka

[4] These three wheelers are operated using four stroke engines and use Compressed Natural Gas (CNG) as fuel. So, their popular name is CNG.

Yet they are "strongly disliked by many sections of the population, especially middle and upper classes" (DITS, 1993:6). Decision makers also take advantage of this hostility towards rickshaws by a section of citizens. "Despite obviously important role for rickshaws and other non-motorised vehicles in providing transport services to the community of Dhaka, there are frequent calls for measures to limit the operation of these vehicles and in the longer term remove them from arterial roads. Finding a socially acceptable strategy ... has been an impossible goal... Generally rickshaw is viewed with disfavour by decision-makers ..., who regard it as an inefficient, inhuman and unstable mode" (DITS, 1994a:43).

In fact, the phasing out policy for rickshaws is not new. Cycle-rickshaws have faced antagonism in cities stretching from Karachi, Pakistan to Kuala Lumpur, Malaysia (DITS, 1993:6) in different periods of the last century and have been banned in most cities in the region. As long ago as 1944 a government committee in India recommended that cycle-rickshaws should be replaced by auto-rickshaws and since the early 1950s there has been restrictions, in several forms, on issuing rickshaw license in Dhaka (DITS, 1993:6). American-Whitney, a Consultancy firm, in their study on Dacca[5] by-pass in 1968, assumed that rickshaws would be gone from the roads by the year 1990 (DITS, 1993:6).

In fact, there is a generalised hostility to NMT in favour of ‘modern’ forms of mobility. As 'ways of seeing' is determined by what and how we know (Berger,1972), motorised transport (MT) is given complete priority over NMTs, often resulting in complete bans of the latter. In many cases the western concept of auto-mobility, which is now not only challenged in the west itself but also is being replaced or modified, is transferred to developing countries either by donors or consultants from developed countries, in a non-challenging policy environment in the recipient countries where government and authorities are in many cases obsessed with 'modernisation' like the west. Like Berger's (1972) views regarding acceptability of particular images and arts, it is observed that the all problem solving 'image' of cars stimulates consumption (demand) of it and in an artificial set-up depicting scope for free choices or options, in this case for mobility, the whole system is used for the 'publicity' and practices against NMT, keeping only the single option of auto-mobility.

[5] The old spelling of Dhaka.

NMT is "the neglected Cinderella of transport modes" (Gwilliam, 2003:212) and is "systematically under-recognized" (World Bank, 2002:xiii). Despite its importance in people's everyday transport needs, the future of NMT in Asia has been placed in doubt (Rahman *et al*., 2009). NMT detractors depict it as being degrading and slow while causing congestion and argue for bans, despite the mixed success of bans throughout the continent (Gallagher, 1992; Hook & Replogle, 1996; Rahman et.al. 2009; Tiwari, 2012). Bicycles are banned in many Chinese cities (Zacharias, 2012). Rickshaws, as well, are being banned in an increasing number of Indian cities: Delhi in the 1980s (Ravi, 2012; Tiwari, 2012) and more recently in Calcutta under a Marxist State government (Sen, 1996). Bans have also been in place in other Asian cities for some time: Jakarta, Indonesia, since the 1980s (Rahman et.al. 2009); Kuala Lumpur, Malaysia (Hook & Replogle, 1996); Bangkok, Thailand, since 1962 (Hook & Replogle, 1996); Karachi, Pakistan since 1969 (Gallagher, 1992); Manila, The Philippines, since the 1950s though they re-emerged in the 1980s (Replogle, 1991). Bans have also been recorded in other countries of the Global South including Africa and other Asian countries (World Bank, 2002; Gwilliam, 2003; Pendakur, 2011; Replogle, 1991). The latest additions to this growing list are Bangladeshi cities: Dhaka (Bari and Efroymson, 2005a & 2005b; Rahman *et al*., 2009) and Chittagong.

Dhaka is the last capital city where rickshaws remain a widespread mode of transport. There were several sporadic attempts to ban rickshaws in different roads. The first planned intervention occurred in 2002 when DCC initiated, as part of Dhaka Urban Transport Project (DUTP), the implementation of the "*NMT-Free Arterial Network – Phased Implementation Plan"* (STP, 2005b:3-4) for phased withdrawal of rickshaws from 11 major roads in Dhaka City (see Map 6.1 and Appendix G, Photographs) to increase speeds in major arterial roads (World Bank, 2005). Mirpur road (Gabtoli-Russell Square) and Panthapath (Russell Square-FDC) were made rickshaw free in December 2002 (New Age, 2005a). However, the movement of people was seriously hampered in absence of adequate modes, and public protest and civil society outcry has been reported in the media from time to time. The ban plan had been withheld (but not officially withdrawn) since 2005. But, since then Dhaka Metropolitan Police (DMP) has been putting restrictions on the movement of rickshaws in several intersection and road segments, on both or single carriage ways.

The decisions to ban what are seen as antiquated, non-modern vehicles arise out of a complex set of decisions informed by values and arising from pressures from interest groups. "Polity involves more than the pressures and counter-pressures on discrete policy choices" (Stone, 1982:276). Decision-makers and decision-making bodies do not act in a vacuum but are rather part of a broader social system managing a set of possibilities and constraints (Zunino, 2006). Such policy decisions in an urban context do not arise from the domination of a single elite but rather the interaction of many different (public and private) interests which lead a group to exercise power in urban decision making (Dahl, 1961; Elkin 1987; Stone 1989, 1993; Mollenkopf, 1983).

In such a background, this study argues that bans/restrictions of rickshaws are matters of investigation as far as social justice is concerned. Since a substantial number of citizens and trips in Dhaka are rickshaw based, the post bans/restrictions effects on their mobility is a matter of concern. Plus, questions like why such decisions are taken and by whom - particularly in a city where motorised mobility is low and public transport is very inadequate - have been raised. Planners and academics also wonder and are interested to know how this apparently less logical decision itself has been undertaken and materialised.

The framework for *just mobilities* developed here gives a conceptual basis for studying these questions: distributional effects on *mobilities*, *process* of the plan making and *politics* behind the decisions.

1.3 Hypothesis, objectives and research questions

Having discussed the background of the research problem, this section puts forward the hypothesis, objectives and related research questions. The scope of the research is guided within the frame set by this section.

A. Hypothesis

In Dhaka, transport planning interventions cannot ensure distributional and processual justice as regards *mobilities* of its citizens; rather the interventions serve the blue-print for a car-based, capital intensive transport system. The decision to ban and restrict the most widely used mode -rickshaws, in several roads is the manifestation of *unjust mobilities*

resulting in an unjust distribution of benefits and burdens; behind this there is a political motivation, both in the process of decision-making and its execution.

B. Objectives

i. To develop and apply a *just mobilities* framework of mobility with reference to the context of planning.

ii. To study the distributional effects of rickshaw bans and restrictions (from the period 2002 to 2012) on the *mobilities* of the citizens in Dhaka using a *just mobilities* framework and identify the losers and gainers.

iii. To study the process of rickshaw bans/restrictions in Dhaka since 2002 and understand the motivations behind it and thus unearth the politics of (im)mobility, seeing bans/restrictions as part of a global trend against NMT.

C. Research questions

A set of guiding questions have been identified to express, investigate and achieve the objectives. They are as follows:

Research Questions for objective i.

- Why and how a *just mobilities* framework is contextual to the contemporary literature on justice, *mobilities* and to the professionals' role in planning?
- How can the framework amalgamate the justice (understood in the context of *distribution*, *process* and *politics*) and *mobilities* (understood in the context of *existing* and *potential mobilities*, and *access, competence* and *appropriation* of *mobilities)*?

Research Questions for objective ii.

- Are the benefits and burdens due to rickshaw bans/restrictions in Dhaka equitably distributed? What are the responses or coping strategies of different households and their members for doing different (*time-bound* and *time-flexible)* activities?
- Do the users have equal modal options and preferences in the post rickshaw ban/restriction condition? Do the choice of users for different modes vary in different modal scenarios - existing and hypothetical?

Research Questions for objective iii.

- Why and how does the ideas of bans/restrictions come from and who implement them? What tools and methodologies are used, and are they neutral or biased?
- Do the externalities of the bans/restrictions have national or global stakeholders (other than those in local and city levels)? Do they have same interests, and are they connected?

1.4 Dhaka - the case study city

The case study area is Dhaka City Corporation (DCC)[6]- the core of the Dhaka megacity[7] and contains 55% of the mega-city population in 2001 (BBS, 2008). The core Dhaka city i.e. Dhaka City Corporation area accommodates around 5.25 million in an area of 160 sq. km. (i.e. density 33132/ sq. km) in 2001 (BBS, 2008; Hasan, 2010). Dhaka is the primate city in Bangladesh; next is the port city at Chittagong.

1.4.1 Growth of the city

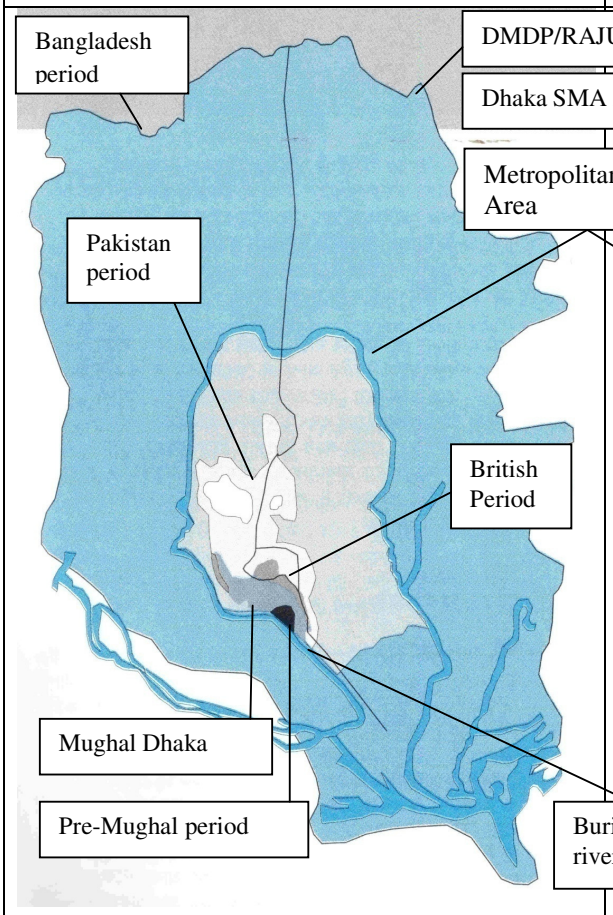
Dhaka, a fourth century settlement on the Buriganga river, grew to prominence as a provincial capital in 1610 and a South Asian trading town in the Mughal era. Portuguese, Dutch, English and French traders arrived in significant numbers in the late 17th century. It declined at the end of the Mughal rule; particularly during the inception of British colonial period here in 1765 and with the growth of neighbouring city Kolkata as the Capital of British Empire. In July 1905, Dhaka was declared the capital of newly formed Assam-Bengal province and had around 100,000 inhabitants. After the partitioning of British India in 1947, Dhaka became the capital of East Pakistan in 1947 and faced an influx of migrants from India. In 1971 Dhaka became the capital of newly independent Bangladesh followed by a major demographic influx and rapid northward growth to give space and scope for rise of "a modern city" (Bradley-Birt, 1975:261). "During the period of nearly 100 years from 1867 to 1961, Dhaka's population increased by more than 0.3 million from just over 50,000 to below 400,000 (6.25 times in actual figure). However, in the next four decades (i.e. 1961-2001) the population in the municipal area increased by around 5 million (4,886,590 to be exact) from below 400,000 to more than 5,000,000 (14.26 times

[6] In November, 2011, DCC had been divided into DCC (North) and DCC (South). But since the division has little implication in this paper, it is referred to as DCC.

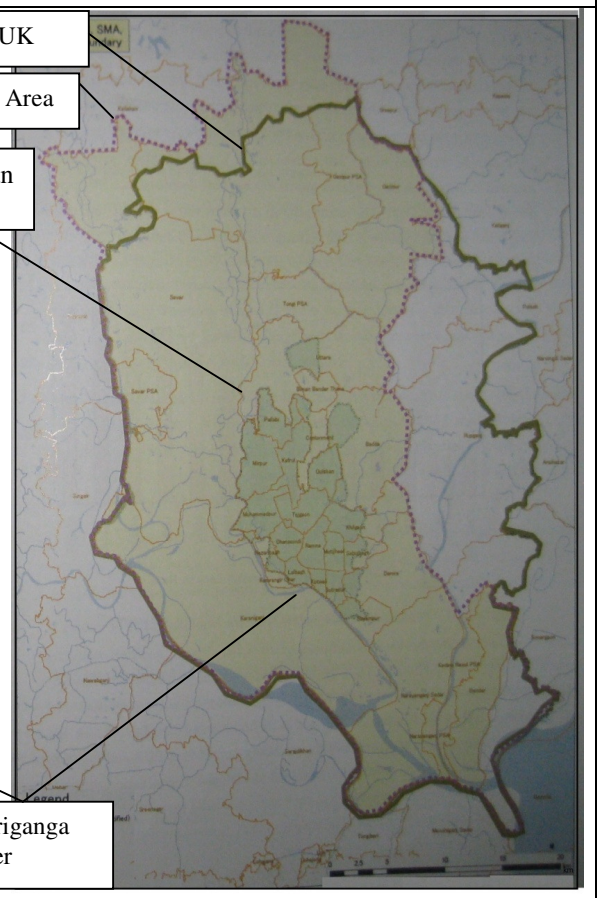
[7] The area of Dhaka mega-city is not officially delineated. Usually, and unofficially, the area under the jurisdiction of the Capital Development Authority (RAJUK), is represented as a mega-city. RAJUK area, spreading over 1528 sq. km (DMDP, 1997), is slightly larger than Dhaka SMA area. Population in mega-city area differs based on sources. UN (2012:7) shows Dhaka mega-city was the 9th largest megacity in the world with population 15.4 million in 2011. Sometimes Dhaka Statistical Metropolitan Area (SMA), delineated by Bangladesh Bureau of Statistics and including DCC, 5 other municipalities and several small town centres, is termed as the mega-city area. Dhaka SMA in its area of 1353 sq. km. (Census, 2001) has 9.67 million people (BBS, 2008). There is another representation of Dhaka as Dhaka Metropolitan area (DMA); the 360 sq. km area under the jurisdiction of Dhaka metropolitan police (DMP). Although DCC and DMA area are used interchangeably but these two areas are not the same.

in actual figure)" (Hasan, 2010:246). Low and wet lands started to disappear to make way for new residential, administrational, business and commercial land uses; slums and squatters also grew unprecedentedly (Hoffermon & Shafi, 2004). Maps 1.1 and 1.2 show the spatial growth of Dhaka and areal boundary of different administrative authorities.

Map 1.1: Gradual growth of Dhaka



Map 1.2: Area of Dhaka under different administrative jurisdictions



Source: JICA, 2012:2-3

1.4.2 Roads and modes in Dhaka

Land use and transport in Dhaka have changed over time with the change in demand and technology. Until recently, when Dhaka was small most of the trips were made on foot (Gallagher, 2010:105). For most of its history Dhaka was a two modes based city: pedestrian and boat (Gallagher, 2010:103). Although there were unsurfaced military roads, radiating from the city, the first surfaced road was constructed in 1679 to facilitate the movement of men, horses and elephants in the wet season (*ibid*, citing Dhaka District Gazetteer). Over time the city grew along the bank of the river. "There was practically no

vehicular traffic, which explains the narrow and meandering road network" (*ibid*:103). James Taylor, a surgeon, in his book 'A sketch of the topography and statistics of Dacca' (published in Calcutta in 1840) commented that "Dhaka's roads were extremely narrow and crooked, and only a few, which were widened by Mr. Walters about ten years ago [i.e. 1830], are wide enough to admit a wheeled conveyance passing through them" (*ibid*: 104).

By the mid-19th century horse carriage became a widely used mode by the rich. But, "often driven by mere boys", they were a menace to the pedestrians causing serious accidents almost in each week (Ahmed, 1986:20). After the First World War cars appeared first in Dhaka and by 1947 they were 4,400 in number (Gallagher, 2010:104). By 1971 there were 17,000 motor vehicles in Dhaka of which one-third were cars and jeeps, one-quarter were motor cycles and 80 were private buses (*ibid*:104). Rickshaws were first introduced in 1930s and like horse-carriage and motor car they were also imported from Calcutta; by 1971 they were 20,000 in number (*ibid*:105). After the independence of Bangladesh in 1971, both MT and NMT have increased exponentially. In 2012, the total number of registered MTs was just over 0.7 million including 0.255 million private vehicles (182,000 cars and rests are jeeps), 0.3 million motor cycles, 40,000 trucks, 10,000 taxis, 20,000 auto-rickshaws/CNG three wheelers and only 20,000 buses and mini buses (BRTA, 2012). But the number of rickshaws was always high; Dhaka remains the "rickshaw capital of the world" (Karim, 1992) currently with an unofficial estimated figure of 1.1 million (Daily Star, 2012).

Today Dhaka is a mega-city and new transport alternatives are being sought and introduced. In such a context old modes are thought to be outdated or unfit to serve the needs of the city (Gallagher, 1992, 2010). Rickshaw bans/restrictions are the first and immediate consequence.

But the current land use and transport infrastructure are not ready to accommodate new options. Most of the DCC area is built up and highly dense. Only 10% of the total DCC area is occupied by roads/railways[8]. Based on a 1998 estimate, Alam and Habib (2003)

[8] Citing a Strategic Transport Plan (STP) internal paper, Hoffermon and Shafi (2004:3-2) show that in DCC area land uses like residential, commercial and industrial, administrative and institutional, roads and transport and lastly open space contain 45%, 15%, 20%, 10% and 10% of total land respectively. In another estimate and categorisation, JICA (2010: 3-21) states that land use distribution in DCC is as follows: housing 40.31%, commercial 3.9%, industrial 1.85%, mixed use 3.72%, public facilities 7.10%, road/railways 9.34%, park/play ground/urban green area 1.09%, restricted area/brick field 16.10%, cultivated land/open space/ forest 7.69% and swamp/marsh/char (small river island)/water bodies 8.90%.

calculates that lengths of primary, secondary, collector and access roads in DCC area are 199 km, 109 km, 52 km and 2540 km. In fact, over the years the length of primary and secondary roads has increased negligibly in Dhaka due to little scope for building new roads without disturbing the existing land uses (Khan & Mitra, 2010). Maps of road network in Dhaka in 1994 (Appendix A, Map A.1) and in 1998 (Appendix A, Map A.2) also support the statement. Rahman (2008) shows that from 1995-2005, there was a 5% addition in road length in Dhaka, while population and traffic increased by 50% and 134% respectively. It should be mentioned that public buses ply on the primary and most of the secondary roads. So the area served by public buses is also very limited. Until recently rickshaws used to ply on most of the roads, except one primary road (airport road). But recent interventions in the Dhaka roads call for making most of the primary roads off limit for rickshaws. As the maps in appendix A show that primary roads compartmentalise the city in several segments, restricting rickshaws, the most widely used mode in Dhaka, in those roads - without adequate openings for them to continue movement - is most likely to make rickshaws marooned in some islands or pockets in the city and increase break of journey of the users.

However, still Gallagher (2010:110) thinks that maybe solutions are in the existing pattern and condition: " 'urban transport problem' is as old as Dhaka itself. ... Even in the 1830s roads were insufficient ... Yet those roads in old Dhaka are still operating today with the same (limited) width and traffic still manages to get through, one way or other. .... Some of the responses to ... transport problems... have echoes today- for example, the costly proposals to widen roads... (then it was Islampur Road in Old Dhaka; today it is flyovers and expressways); a bias towards investing municipal funds in better-off neighbourhoods; and the general reluctance to raise the taxes to pay for transport improvements".

1.4.3 Mess in mobilities and importance of rickshaws in Dhaka

As far as transportation problems are concerned Dhaka is not an exception amongst Asian cities and other cities in the developing world; traffic jams, inadequate and uncertain public transport, no road hierarchy, lack of road safety, excess/unregulated fares (in taxis, CNGs, para-transits), excessive crowding in public buses, haphazard on-street parking etc are everyday experiences (Khan & Mitra, 2010). Although roads are jammed with private cars, along with rickshaws, the luxury of car trips is limited to a few citizens. Every day,

in peak hours, people are seen fighting to place their foot in the buses. Of course, women do not participate in the tussle; are compelled to opt for motorised three wheeler, CNG- at least at double the fare. *Rickshaw-wallas* utilise the opportunity by asking for unreasonable, sometimes 'annoying' (as has been said by an interviewee during the field survey) fares. Children, going to school and their escorting guardians, mainly mothers live a nightmare on their way to and from schools. The same is true for aged, diseased persons. And these problems are exacerbated by rapid growth of population and unregulated land use development (Khan & Mitra, 2010) .

In such a situation several hundred thousand rickshaws play a vital role in keeping the citizens mobile. Any visitor to Dhaka is certain to be stunned by the overwhelming presence and extensive use of rickshaws (Kalabamu, 1987). In fact, there is no accurate estimate of the number of rickshaws in Dhaka (STP, 2005a:7). DCC stopped providing licenses to rickshaws in 1979 when the number of licensed rickshaws was 79,554[9]. But the number of rickshaws kept growing[10]. Unofficial estimates place the figure between a minimum of 0.8 million in 2005 (*ibid*) and a maximum of 1.1 million, with one million considered illegal, in 2012 (Daily Star, 2012, quoting DMP Traffic Commissioner). The volume of passengers transported are equally stunning, with 7.6 million person-trips per day in 2009 (JICA 2010:3-15), close to double the highest number of passengers carried (4.4 million) by London Tube in a single day during the 2012 Olympics (Metro, 2012). This implies a significant growth from the late 1990s when the estimate was between 2.6 and 3.5 million passengers per day (Kalabamu, 1987).

Rickshaw trips are also overwhelming when compared to other modes of transport in Dhaka. In 2009 out of 19.58 million daily trips in DCC, the modal shares for rickshaws, car, foot and public bus were 38.7%, 5.2%, 19% and 28.5%, respectively (JICA, 2010;3-15)[11]. For a household, trip rate (measured as number of trips/household/day) for rickshaws (2.9) is more than one-third of the average household trip rate (8.5) (STP,

[9] Additional ones were released in 1986 raising the number of licensed rickshaws and vans to 90,000 (Gallagher, 1992 and interview with a DCC official of the Wheel Tax Department in charge of rickshaws, vans etc on the 2nd July, 2012).

[10] DasGupta (1981:15) citing Rashid, Police Commissioner, Shankland Cox and Partners' report, Holiday (a now defunct weekly newspaper) report the number of rickshaws as follows: 45,000+ (1978), 81,000 (1979), 50,000 (1979) and 100,000 (1980). He shows an interesting diagram of positive association between growth of population and numbers in rickshaws in Dhaka.
After 1990s, DITS, (1994:43) states the number of rickshaws to be 150,000- 200,000. Strategic Transport plan (STP, 2005b:17) estimates the number between 0.4-0.6 million in 2004.

[11] Over the decades the share of rickshaw trips remained around one-third of total trips. In 1980, the composition was: foot- 21%, rickshaw-34%, bus-34%, auto rickshaw-4% and car-6% (Midgley, 1994). In 2004 the figures were- rickshaw-34%,, public transport-44%, foot-14% and car (plus auto-rickshaw, motorcycles, etc.)-8% (STP, 2005:2-26).

2005b). By contrast the household trip rates for car[12] is a mere 0.7 and for bus and on foot 3.7 and 1.2, respectively (STP, 2005b). Although there is a difference in trip length among low (7.3 km), medium (7.8 km) and high (8.4 km) income households[13] (JICA 2010, 12-7), Figure 1.1 shows that in 2009 rickshaw trips were vital for all household income groups; rickshaws were the single largest mode used by each group. Similar proportions were registered for 2004 (STP, 2005a:12).

Rickshaws are used principally (42%) for 'home-education' trips (Figure 1.2). These, together with 'home-other' trips, represented 59% of all household trips in 2004. 'Home-work' trips were one third (32%) of total household trips in 2004, and in these rickshaws had the second highest share (27%).

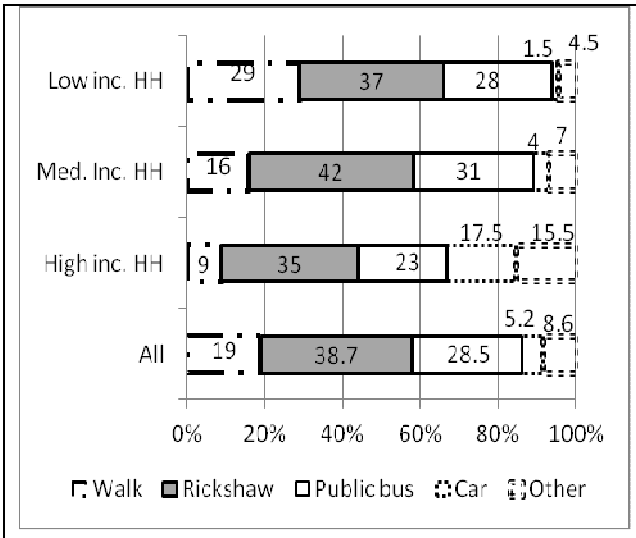


Figure 1.1: Modal share of trips for different household (HH) income[14] (inc.) Groups, 2009
Source: Based on JICA, 2010: 3-15 to 3-16

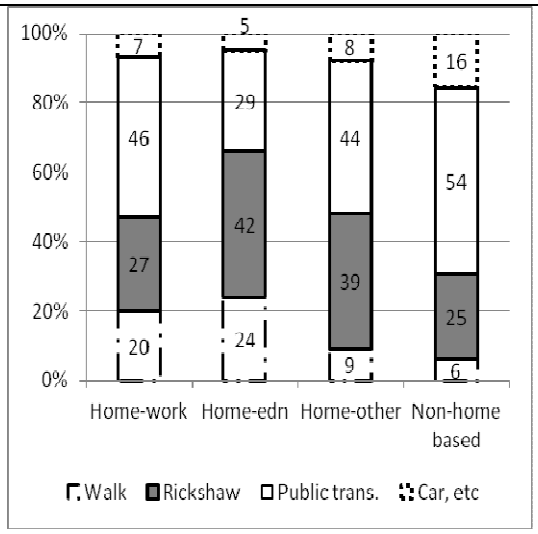


Figure 1.2: Modal share in each purpose based trips, 2004
Source: Based on STP, 2005a:12

Despite increasing motorisation in recent decades[15], like many other cities in the developing countries, Dhaka is a very low motorised city (World Bank, 2002:7) with approximately 32 vehicles/1000 residents (STP 2005b:20) or one car per 190 households

[12] STP includes auto-rickshaws and motorcycles with car trips and terms the category as motorized non-transit mode.
[13] Average trip length 7.7km in 2009 (JICA 2010:12-7) and 5.5km in 2004 (STP 2005a:2-27)
[14] Household income levels as per JICA (2010:3-15): up to Tk 19999/month- low income, Tk. 20000-49999/month and Tk 50000 and above - high income.
[15] Since 1994 when the Dhaka Integrated Transport Study (DITS) was carried out, daily trips grew by over 10% per year up to 2004: rickshaw trip from 1.48 to 6.35 million/day, (4times+), Public transport trips from a tiny 0.38 to 8.23 million/day (21 times+), non-transit (Car and others) trips from 0.9 to 1.49 million/day (approximately double). The walk trip on the contrary declined from 5.15 to 2.62 million/day which is 50% of the earlier figure. (STP, 2005a;16). Again as per Majumder, *et al*. (2009), Total growth of the vehicle fleet in Dhaka for the period 1999-2004 is 53% (bus 267% , car 36%). Between 2004- 2009, growth of 24hr volume count for bus, car, rickshaws have increase respectively by 2%, 4.4% and 0.3%. The volume has decreased by 5.2% and 4.3% for taxi and auto-rickshaw (JICA 2010:3-31).

in Dhaka city (Majumder, *et al*., 2009). Moreover, the DCC area is very dense, already built up with organic (unplanned) land use development[16]. It is argued that the rickshaw is perfectly suited to be the main mode of transport in this context (Kalabamu (1987:129). Majumder and his colleagues (2009) observe that rickshaws are more effective in short distance travel. In fact, the average trip length for rickshaws was 3.81km in 2004 (STP 2005a:2-27) and 3 km in 2009 (JICA, 2010:4-15) - i.e. nearly half the average trip length (see Footnote 13 for the average trip length). STP (2005b:17) states that "inadequate and disorganised public bus" has resulted in rickshaws filling the "vacuum created and... become a popular transport among the middle and lower middle class population". Although for STP rickshaw users seem to be restricted to a single class, for JICA (2010:3-31) all "residents are highly dependent on non-motorised transport particularly rickshaw".

1.5 Contribution to knowledge

In short, the contribution of this research includes (i) development of a framework combining disparate fields of literature from social justice, politics and mobilities; (ii) drawing attention to the donor influenced, investment driven, motorisation oriented wrong transport planning in Asian and other developing cities, in general and (iii) in particular, illustration of unequal outcomes (benefits and burdens) of rickshaw (or NMT in general) bans in Dhaka, and bringing the associated biased process and 'glocal' (global and local) politics to light.

Social justice, and equity, is a growing conceptual and practical concern in the field of development. Disciplines in social science like law, political science, geography, public policy, development studies are increasingly responding to it; but disciplines like urban and transport planning and engineering are lagging behind. This research seeks to contribute to reduce the gap between theory of social justice and practice in planning and management (of urban transport).

As far as rickshaw is concerned, this research is a pioneering one to bring to light the unjust distribution of benefits and burdens of ban decisions at the household or user level

[16] Zacharias (2005) shows, comparing European and American examples, that rising income does not always result in an increased MT use. Again Kenworthy et al. (1997), Cervero & Kockelman, 1997, Zacharias (2012) suggest urban density, local arrangement or land uses and road infrastructure have an important role in the use of public transport and NMT (cycling, walking). Again, Khisty (2003) observes person-miles traveled increases with city size (quoting Zahavi) and consequently MT trips increases; the more compact the city is the greater the probability of NMT use. Khisty also shows while limiting distance for walking in developed countries is 0.4km, in developing countries it is 2km and same figures for bicycle is 1.5 km and 9 km respectively.

in Dhaka. More importantly, most of the transport literature on rickshaws and all policy papers and strategies regarding transport in Dhaka, show the importance of rickshaws mainly, if not only, from the perspective of livelihood of the poor *rickshaw-wallas*, i.e. surprisingly and unfortunately not from the context of the rickshaw users in the city. But the strength of the research is its investigation into the household units. While some relevant global and local literature on motorised and non-motorised mobility have carried on-streets surveys, this study did the same at the scale of the household to capture the individual and collective responses and impact of the planning decision. It is worth mentioning that in many cases the on-site respondents are neither residents nor directly affected by the transport planning interventions; but the households in the intervention areas have direct experience- good or bad - of it.

Finally, this research has vividly exposed the existence of anti-NMT politics in Dhaka involving business, bureaucratic and others interests of global and local actors realised via various (formal and informal) processes and forms. It also discloses the failure of 'expert' prescribed, donor influenced, and recipient (of foreign loans/grant) chosen 'one size fits all' type of traditional transport solutions. Thus it joins the gradually growing list of literature urging a rethinking of auto-based approach to urban mobility with the empirical contribution from the context of a rapidly growing Asian city.

1.6 Scope and limitation of the research

Differentiating mobility and *mobilities*, the research goes beyond a traditional planning or engineering definition of mobility (dealing only with distance, time, frequency); borrows the broader concept of *mobilities* (that includes existing and potential *mobilities* in different destinations for different purposes, process of decision making regarding *mobilities* by planning and other agencies, and associated factors and motivations, termed as politics of *mobilities*). Then it has looked into the *mobilities* of the surveyed respondents and their households in the context of rickshaw ban/restriction in Dhaka. A limitation from a methodological perspective arises due to a disproportionate distribution of female (20%) and male (80%) respondents. So, relevant interpretations have to be considered keeping in mind this bias[17].

[17] However the bias was unavoidable during fieldwork in 2012. The household survey was done on randomly selected households. The respondent from the households was whoever came from the household to respond. The survey was mostly done in the weekend when male members used to be at home. And in the context of Bangladesh, it is the adult male member who speaks to a stranger first.

It must be admitted that rickshaw bans/restrictions are associated with other issues: effects on the livelihoods of the *rickshaw-wallas* and the question for a just transport solution for Dhaka. These issues are matters of research in their own right. However, since this study is about mobility and looks at it from the user's side, the livelihoods of the *rickshaw-wallas* are not within the purview of it. Similarly, since it investigates the just or unjust impact of a decision to ban/restrict rickshaws on (urban) *mobilities* and does not search for a holistic answer to the question of achieving a just transport system, answering the question "what could be possible and just alternative to rickshaw based *mobilities"* is beyond the scope of the research. Similarly, measuring the degree or level of injustice in the current scenario of *mobilities* in Dhaka is beyond the scope. It only explores the aspects and forces potentially causing *unjust mobilities*. Finally, it must be mentioned that this study is not about transport but mobility - of which transport is argued to be a factor (producing or serving mobility). Therefore, the study is not even about transport planning solution(s) for Dhaka, nor seeks to answer if in the long-run rickshaws should be there or not. Rather, the main concern of the thesis is differential effects on the activities (resulting mobility) of the citizens after the rickshaw bans and restrictions; the way the decisions are taken; the difference in the explicit (as said) and implicit (as argued in this research) motivational politics.

1.7 Organisation of chapters

This dissertation consists of seven chapters. Having introduced the research problem, the case study city - Dhaka and case study in the first chapter, the methodology of the research and along with its epistemological position are discussed in the second chapter. The second chapter describes the methodology[18] of the research and also provides a profile of the study area: locations, respondents and households, with respect to the whole Dhaka city, if and when required and possible. The theoretical basis of *mobilities*, justice and politics are reviewed in the next, third chapter. It also discusses the principles of justice in transport planning, politics of mobility to provide a basis for the development of a *just mobilities* framework. The fourth chapter has sought to achieve the first objective. After drawing on the need and justification for the framework, the *just mobilities* framework has been developed; a set of guiding questions has also been identified with regard to

[18] Usually methodology comes after the literature review chapter i.e. third chapter in this dissertation. But the first objective of this research i.e. development of a *just mobilities* framework is very much literature dependent. Therefore, for ease in reference and continuity methodology chapter is put before the literature review chapter.

distributive, processual and motivational (politics) components of proposed conceptualisation of *just mobilities*. Distributional aspects of *mobilities* on different socio-economic and demographic aspects of respondents and households after the bans/restrictions are presented based on the field work, 2012 in the fifth chapter. Then comes chapter six. It provides a discussion of the process of the ban/restriction decisions and an analysis of politics behind it. The final chapter contains a summative discussion on the nature of *mobilities*, just or unjust, in Dhaka. It makes a brief revisit to the objectives and relevant findings of the research and finishes with an indication for further research.

1.8 Introducing and operationalising terms used

A couple of local terms like *rickshaw-walla*, *rickshaw-malik* have been repeatedly used in this research. Since some English equivalents of these terms exist, the use of local terms requires explanation in the onset of the research.

The term rickshaw originates from a Japanese word *Jin-riki-sha* which means human powered vehicle (Gallagher, 1992:25). Rickshaw is a non-motorised vehicle operated by a person. It usually carries two passengers. There are two types of rickshaws: two-wheeled and three-wheeled. Two wheeled rickshaws are seen in some parts of Kolkata, India and in very few tourist spots around the world including Japanese tourist spots. These are drawn or pulled by a person. In fact, the term Jin-riki-sha was originally applied to hand-pulled rickshaws which were widely seen in Asian cities in the 1920s and 1930s (*ibid*:25). And perhaps, this is the reason for developing the English term 'rickshaw puller' to refer to the rickshaw-driver/operator.

But in Bangladesh only three-wheeled rickshaws, also called cycle-rickshaws, are seen. They are also seen in many Indian cities and in some cities in developed countries (mainly for the tourists). These cycle-rickshaws are pedalled like cycles. So, appropriate English term to refer to the cycle-rickshaw driver could be rickshaw pedaler. However, instead of using the term rickshaw pedaler this research has used the locally used Bangla language-based term *rickshaw-walla.*

In Dhaka most of the *rickshaw-wallas* do not have rickshaws of their own. They rent it from the owners on shift basis-day or evening shift or both. In Dhaka, and also in other Bangladeshi cities, rickshaw business is garage based. The owner of the garage owns

rickshaws, sometimes numbering as high as 100 or even more. Garage owners also provide non-resident or seasonal *rickshaw-wallas* with slum like accommodation and two meals (lunch and dinner). These garage owners are called *rickshaw malik* in local terms. This research has used both the terms- *rickshaw-malik* and garage owners interchangeably.

To avoid confusion over the use of several terms- mobility*, mobilities,* distribution, process and politics, in the operational framework of *unjust mobilities* a brief note is required in the very beginning; details are discussed in chapter three and chapter four. This research is about mobility. However, the very conceptualisation of mobility has experienced a paradigm shift particularly in social sciences and gradually in technical disciplines like planning, engineering. It is being said that mobility is a complex and multidimensional phenomena; beyond simple representation of trip, distance and frequency. Therefore a new key word *mobilities* is introduced and used in the relevant literature (Sheller & Urry, 2006a; Kaufmann *et al*., 2004). This research on urban mobility also agrees with the new paradigm of *mobilities.*

Social justice, or injustice, is a fundamental theme of this research. However, just or unjust *mobilities* is understood not in a legal term; rather three aspects - distribution of outcomes, process of decision making or planning and motivations behind the decisions are pivotal in the framework developed. These three aspects are often briefly termed as *distribution, process* and *politics* in this research.

The activities of the household members are divided into two categories: *time-bound (routined)* and *time-flexible (other)*. Examples of *time-bound (routined)* activities are going to school, for regular job etc. These activities are done regularly (in most cases at 4/ 5 days a week) at specific times. While examples of *time-flexible (other)* activities are going for shopping, recreation, visiting relatives etc. i.e. such activities are very common but not done exactly at the same time of the day or week. (See also footnote 36 for further clarification and for implications of this categorisation for studies involving social justice in *mobilities*).

Finally it should be mentioned that Bangladeshi currency Taka (Tk.) has been mentioned several times in the following chapters. It has been mentioned in current units. One US Dollar is equivalent to Tk 77.75 and one British pound is equivalent to Tk. 115.85[19].

[19] As per http://www.xe.com as on 7th July 2013

Chapter 2

Methodology and profile of the study area

2.1 Introduction

This chapter illustrates the process and method used to achieve the objectives of the research. It also outlines the nature of the research and epistemological position of the author. It should be mentioned that the first objective - to develop a *just mobilities* framework - is based on the review of relevant literature on social justice and *mobilities*. While the second objective of the research is sought mostly by using the results of a questionnaire survey, the last objective is sought by using the findings from the semi-structured interviews and literature. After explaining the fieldwork, a profile of the studied areas is added which puts light on the locations, respondents and their households and activities (requiring mobility) done by the respondents and household members. The profile is supplemented by relevant data and information for the DCC area or greater Dhaka.

2.2 Positioning the research

Scientific reasoning fundamentally starts with a positivist approach of asking question, investigation and reaching the 'truth' based on the findings. Mobility studies in the field of transport planning and engineering are examples: deductive 'logical frame' with an objective epistemological stance, mechanistic philosophy and 'atomist' or 'realist' social ontology; applied on a static temporal framework; to make generalisation, prediction or casual explanation of the variables/data collected by surveys or interviews of samples (representative of a large population) and analysed by quantitative tools[20]. On the other hand, social science studies on mobility are usually done with an interpretivist or 'humanistic' approach: inductive 'logical frame' with a subjective epistemological stance and teleological/intentional philosophy and 'structural'/constructivist social ontology; applied on particular theme or motif with a processual/historical time frame; to make an understanding or social critique of small population (with or without sampling) observed through participant observation, interactive interviewing, introspection.

Until recently two types of transport studies proceeded almost in parallel, with little exchange and penetration of each other. However, as no socio-natural knowledge is

[20] For details of the difference between the positivist and 'humanistic' approaches see Aunger (1995)

ultimate and neutral, there should always remain scope for 'either/or, or black/white' thinking (Ryan 2006:16). So, challenges to positivism emerge in complex social contexts while facing the conflicting and or multiple meanings of truth through (absolute) ability of (and confidence in) science (Williams & May, 1996). In fact, disciplines and movements in social change like feminism, post structuralism, critical psychology, anthropology, ethnography, as well as the knowledge of Eastern, Asian and indigenous societies, "who see all events and phenomena as interconnected", have been critical of positivist epistemologies (Ryan, 2006:16). The same wave of reorientation is observed in transport, especially in mobility studies[21]. Town (1981) observes that sociological transport research must be distinguished from descriptive social research- while the latter is limited to the account of social impacts, the former is characterised by the analysis of travel patterns in given social, political, economic and institutional constraints. In fact, while descriptive social research in transport accepts the trips as *given*, sociological research asks the basic question about *why* and *how* trips are made; plus a sociological approach differs from a social one in the sense that it analyses transport and traffic-related social data in respect to the relative economic and political assets of social groups and classes, as well as their conflicting (or merging) interests (Vasconcellos, 2001:33)

Therefore, having started from a positivist thinking, the study has gradually and ultimately positioned itself within the sphere of 'post-positivism' (Creswell, 2009:6). In fact, the motivation for this research partially comes from the very experience of the researcher - while living, studying and working there - regarding the mobility problem in the city of Dhaka. While, on one hand, the local knowledge has been complementary to explain and elaborate some dynamics, it could have also generated bias obstructing 'open-minded' research. As any epistemological approach, whether positivist or relativist, is inevitably biased by the researcher's previous background and beliefs (Berg, 2004), a middle ground between those is sought to conduct the research with care and concern for validity, reliability and authenticity.

Therefore, a part of my research consists of objective representation of field data with emphasis on quantitative representativeness (to avoid any numerical bias or anything so arising from the nativity of the researcher). But the question is 'not about being either

[21] For details see section 4.2.1

subjective or objective' to answer the research problem, nor the author has inclination to one over the other. While the quantitative analysis provides an overview, the qualitative investigation digs into the depth of interpretation of the incidence, experience and meaning. Plus "adherence to" several "discourse[s]" of justice and mobilities, the concern with power and politics, the value of narrative or experience of the local stakeholders, acknowledgement of the "need to be reflexive" (Ryan, 2006:22) in this study has made it worthy of qualitative research. Again, post-positivist research is not essentially problem solving, it can be about problem setting – coming up with the right questions which may themselves lead to empirical research (Ryan, 2006:19). This statement also goes in line with the research questions and findings of this research.

Thus, as far as method is concerned, this is a mixed method[22] research which has been found to be essential to understand the 'multiplicity and complexity' of the problem. Based on an extensive literature review a proposition, named *just mobilities,* has been developed. To apply a part (distributive justice) of the proposed framework of *just mobilities,* sampling (both for studied localities and interviewees) is done followed by a modest qualitative analysis. This 'logical form' in this research is closer to deductivism due to the complexity of an extensive theoretical articulation in the literature and *just mobilities* framework developed (first objective). Then the predominant 'how' (decision making) and 'why' (motivation or politics) nature of the research to understand the processual justice part of the theory (incorporated in second and third objectives) leads the research to undertake a semi-inductive logical form and frame. Thus, as far as a 'temporal framework' is concerned it mixes both the 'static' (to understand the distributive effect of the rickshaw bans and restrictions) and 'processual' (to understand the process of and motivation behind the decisions) ones. Moreover, the 'how' and 'why' nature of the research makes it close to the intrinsic nature of a Case-Study research, whereas the analytical method of selection of the sample areas, sample for questionnaire survey are good attributes for quantitative investigation.

2.3 Justifying the case

As has been stated in the first chapter, mobility for the citizens of Dhaka involves a stressful condition with almost all possible problems found in the developing and rapidly

[22] See for details Bryman, 2008, 2006

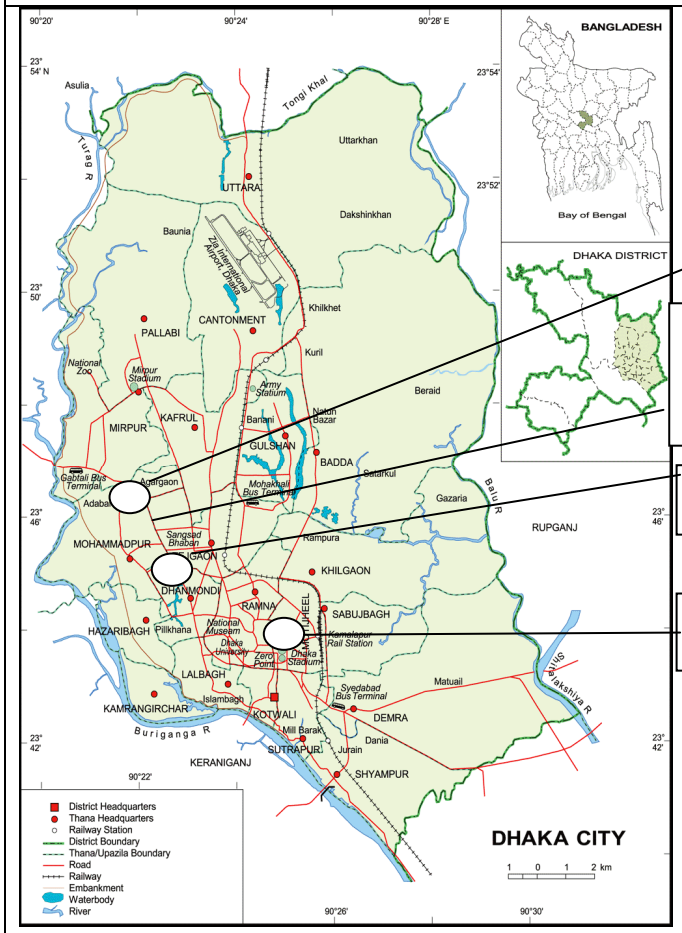
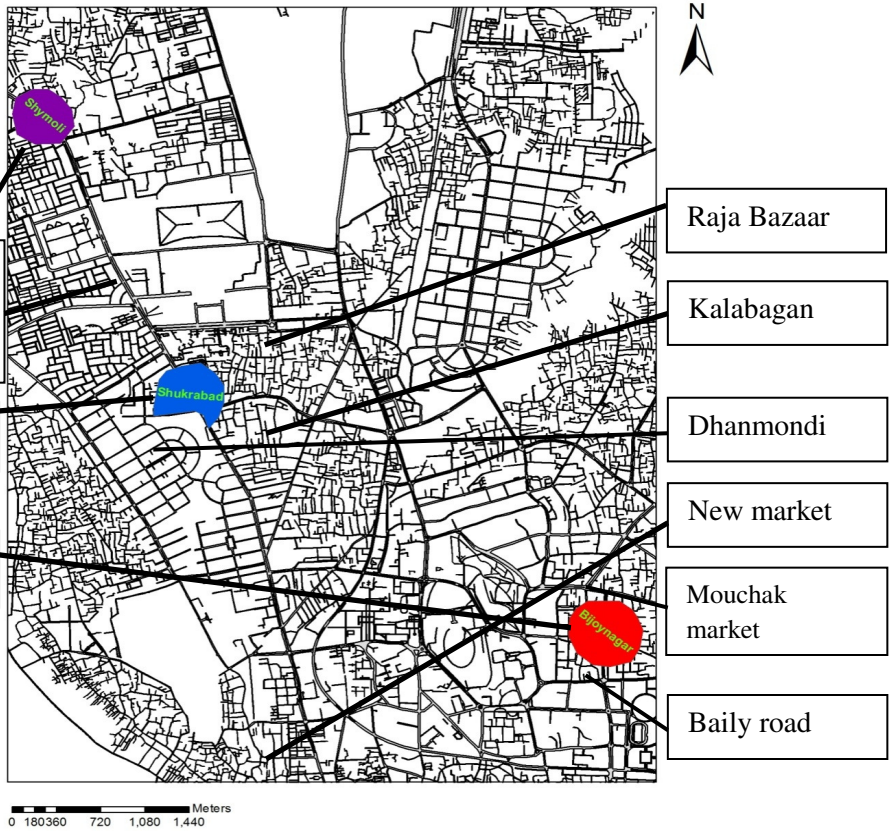
urbanising and motorising cities in developing countries. Whereas rickshaw as a transport mode is one of the prime movers of citizens, the decision to ban and restrict their movement is hypothesised to affect the revealed and potential mobilities of the users. Moreover, in a city where public transport is under-developed and private car ownership is much low, the decisions are further hypothesised to be taken with a complex motif and interest. So to study the distributional effects of a planning decision on the mobility of the citizen plus process and motivations of the decisions, i.e. justice or injustice in one word, the case of rickshaw bans and restrictions is very appropriate. Besides, during the period of an increasing focus on NMT, studying rickshaws as non-motorised public transport (NMPT) in cities like Dhaka and understanding mobility in the city with and without rickshaws are essential. This also justifies studying rickshaws using the *just mobilities* framework developed in the research.

2.4 Justifying the case study areas

2.4.1 Study areas

Initially in 2002 DCC had a plan to ban rickshaw movement in eleven major roads/corridors in the city (Efroymson & Bari, 2005; see map 6.1). It started the implementation of the plan by banning rickshaws from Russell Square (located within one study area - Shukrabad) to Gabtoli section of Mirpur road corridor (see Map 2.1 and Map 2.2). Afterwards DCC banned rickshaws in the whole Mirpur road and partially in several other corridors (HDRC, 2004; New Age, 2005a). Later on DCC retreated from implementing the whole plan due to popular uproar and other reasons (Bari and Efroymson, 2005b). But after DCC, now there is DMP who restricts rickshaw movement along and in the vicinity of some busy intersections. The research studied both the old ban and the new restriction areas.

A multistage spatial sampling has been followed to identify study areas. The stages included identification of (i) rickshaw banned/restricted roads or corridors, (ii) early banned and recently banned/restricted roads or corridors, (iii) presence/absence of restriction on rickshaws in the secondary/connecting roads and (iv) similar areas from new and old ban areas.

Map 2.1: Study areas in the context of DCC area	Map 2.2: Study areas in the context of neighbouring areas
	
Source: Dhaka City Corporation	Source: Prepared from DAP, 2010

Map 2.3: Rickshaw banned road, road sections and intersections in the three study areas

Shyamoli	Shukrabad	Bijoynogar

Source: Prepared from DAP, 2010

Three areas - Shyamoli, Shukrabad and Bijoynogar, in DCC area have been selected for the study (see Map 2.1 and Map 2.2). Out of 90 wards in DCC, Shyamoli is in ward 49, Shukrabad belongs to ward 28 and ward 29 and Bijoynogar is in ward 36. The first two areas are along the Mirpur road- the first corridor facing a rickshaw ban since 2002 (see also Map 2.3). The last one is a recent rickshaw restricted area. Users and locals informed during field survey that in Bijoynogar restrictions in different intersections started since early 2011. But restrictions were withdrawn in the next month after public and press uproar. Later on since the end of 2011 the restrictions were imposed again and so far have remained permanent in Bijoynogar. Map 2.3 shows that in Shyamoli and Shukrabad Mirpur road is totally restricted for rickshaws; besides there are a couple of rickshaw-restricted intersections in all the three study areas.

2.4.2 Why three study areas

The main reason to take three study areas is to understand if there is any variation in the mobility and or if problems created by the withdrawal of rickshaws are related to the length of the interventions. Apart from the difference in the duration of bans/ restrictions, the study areas also differ with respect to nature of bans/restrictions along the road: Shyamoli and Shukrabad experience ban along the entire major road corridor (Mirpur road) while Bijoynogar faces restriction on rickshaw movement in the intersections. Apart from these differences, the areas are similar with respect to -

(i) Road type: All areas are on major roads serving public buses. It should be mentioned here that in Dhaka public buses ply only on some major roads; not in secondary or tertiary roads where less road width, strong presence of other type vehicles, indiscriminate onsite parking of car make the space and scope too little for buses to ply on. All three areas are served, although too limited to match the demand, by public buses.

(ii) Building type: All types of buildings are present in all three areas. Builidng types include high and low rise, private and real estate developer built apartments of different size.

(iii) Proximity to major activity centres/CBDs: The first two areas are close to Karwan bazar - a commercial and retailing hub; New market- a shopping hub; Dhanmondi- a vibrant hub of educational, commercial, service, residential and recreational/cultural land uses and activities. Last one, Bijoynogar, is close to Motijheel- a major CBD/commercial hub; Mouchak-Baily road, Baitul Mokarram area- vibrant shopping attraction; Segunbagicha-Bailey road area - a hub of mixed land uses like residential, office, cultural/recreation ones.

(iv) There is no slum in any study area[23], although one third of the people in Dhaka live in slums containing 11% of total land devoted to residential use (CUS, 2006). This is mainly because the study areas are typical middle class areas[24] in the city. Since these areas are close to CBD, land value is high, land uses are dense and areas are mostly built up. So, slums are not located exactly within the premise of these study areas.

The other reason for selecting three study areas is to understand if there is any difference in the mobility pattern of the users in areas where secondary roads have/do not have restriction on rickshaws. Shukrabad is almost rickshaw restricted area as only one secondary road is open for rickshaw (see Map 2.3). For other roads passengers have to leave rickshaws around 250 metre before the intersection. But in the case of Shyamoli rickshaws can come as close to the intersection with major road. In both cases no rickshaw can cross the intersection. So they have to take a u-turn with or without passengers in the reverse direction; if police/ traffic warden do not allow them to stay there, to maintain traffic order or to restrict a jam of rickshaws which eventually spread in the major road in some cases. Bijoynogar case is interesting as here one intersection and one secondary road are restricted for rickshaws (see Map 2.3) .

[23] However, slums are found in locations close to these study areas. But during the reconnaissance survey, none of the respondents mention that they are either coming from going to any slum which could be their living or activity area. So exclusion of slum is not suppose to affect the study findings. However, focus group discussion with the *rickshaw-wallas* reveal that many of them live in the slums- small or big. But they also informed that neither their household members nor most of their neighbours in the slum are rickshaw users - rather they walk.

[24] In fact, the study areas are selected on spatial criteria, listed out in the 2nd paragraph of the section 2.4.1; no socio-economic criteria was applied. However, there is a general perception in Dhaka about people living in some areas: Gulshan, Banani, Baridhara, which are planned neighbourhoods, are posh or high income areas; Kalabagan, Moghbazar, Rajarbagh, Elephant road and some other areas including three study areas are middle class areas. The study has only reflected this perception saying that the study areas are middle class areas. It should be mentioned that it has developed no criteria or benchmark for income based classification of citizens in Dhaka. However, later in this chapter car-ownership and other characteristics of the respondents of the households are examined based on the income level defined by JICA (2010), described in Figure 2.5.

So it is important to mention that residents in these three study areas cannot use rickshaws for any activity which is to be done on the other side of the road. However, if they cross the road on foot, in case of Shyamoli and Bijoynogar they find rickshaws just on the other side of the road and in case of Shukrabad they have to walk around 250 metre. Since residents of the area, know the banned/restricted roads/intersections, in case of short distance trip they walk to the other side and take rickshaws. But non-resident or through user of the areas face a break of journey. Although residents of the study areas may avoid break of journey in their localities, but for many others for journeys to other parts of the city broken journeys are unavoidable; they have to use long distance diverted routes as rickshaw banned/restricted areas spread almost all parts of the DCC areas.

2.5 The fieldwork

The field work was done in the period between January and July, 2012. While the author was directly engaged in the data collection, four undergraduate students from the Department of Urban and Regional Planning (URP), Bangladesh University of Engineering and Technology (BUET) were recruited to help the author throughout the period in this regard. Plus required number of part-time assistants were employed to help the whole team in survey and interview organisations and data input. The team consisted of both male and female assistants.

In the very beginning the author sat with the four core assistants and briefed them on the nature and purpose of the research, challenges and ethical issues. When the other assistants were engaged they also got similar guidelines and had been asked to work only with any of the four main assistants. The author joined the assistants during data collection, and made regular inspections to their other activities.

The field work consisted of (A) Reconnaissance survey, (B) Household Survey, (C) Focus group discussion and (D) Interviews. Each of the questionnaire/checklist of questions for interview/FGD were tested among the core assistants for their acquaintance with the questions, difficulties in understanding (if they understood the same what the author meant). Then the adjusted questionnaire/checklist was tested in the field twice and necessary adjustments made in questions, words, variables/options. It should be mentioned

that for statistical validity 384 sample units[25] (128 from each area) were selected (at 5% confidence interval and 95% confidence level) for household survey as the total population or number of households were too large. Eventually, 385 households were surveyed; the number of surveyed households in Shyamoli was 129, i.e. one more from the required 128.

A. Reconnaissance survey

Initially introductory visits were made in several locations along rickshaw banned/restricted areas to choose the case study areas. Once the three study areas were identified, their approximate boundaries were delineated. Plus, the restriction points, intersections were also visited and several rickshaw users were asked about the origins and destinations of their trips. It has been found that people (staying in the locality) usually come to restriction points from less than one-third of a kilometre i.e. residents more than the distance use the other points for entry to or exit from their residence. Therefore, a maximum of 350 metre radius from the restriction points are considered for household survey in each studied location (see maps 2.3 and 2.4 for area covered by 350 metre radius during survey). It is worth mentioning that there is no slum within 350 metres radius from any restriction point in any study area nor there was any passenger found either going to or coming from any nearby slum (see also footnote 23) by rickshaw through the studied points.

B. Household survey

The survey was done in randomly selected households, one in every 20th households (housing unit) along the secondary roads in the study areas. An adult person in the household (male or female) was requested to answer the questions. (In the socio-cultural context of Bangladesh, most of the time respondents were male) (see also footnote 17). When the expected house was found having any non-residential use (shop, office etc) or closed/under lock and key or the respondent refused to take part in the survey the immediate next household was contacted. Here household means all the persons who live and eat food cooked in the same oven or stove. The survey was done on weekends or

[25] For an unknown population or population size more than 80,000 the statistically valid sample size, at 5% confidence interval and 95% confidence level, is 383 (Source: http://www.surveysystem.com/sscalc.htm, accessed on 16th September, 2013). So, for each study area population size is 127.66 i.e. 128. It means total sample size for three study areas should be 384 (128X3).

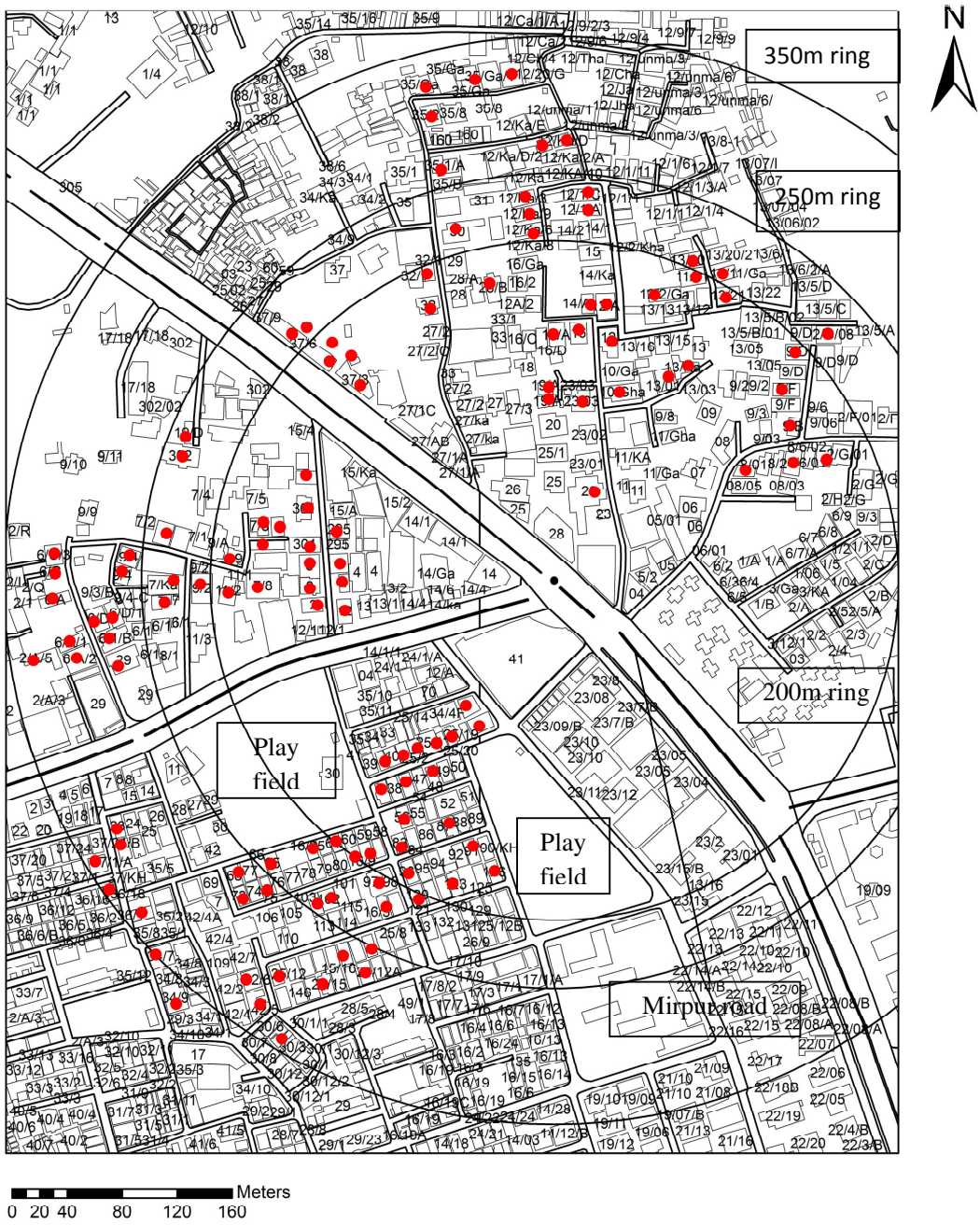
government holidays or in some cases in the afternoon or evening upon prior consent/request of a household member.

Maps 2.4a, 2.4b and 2.4c show the location of plots/building of the studied households. It should be mentioned that household survey has been done along the secondary roads adjacent to the main/primary road. However, if the land uses along or on roads were found non-residential - commercial, office, institutional or shipping centres, they were not considered for the survey. As has been mentioned earlier in subsection A, each study area is of 350 metres radius which is equivalent to 0.4 square kilometre in extent. The maps (2.4a, 2.4b and 2.4c) show three rings of 200 metre, 250 metres and 350 metres to show the locations of households surveyed. Dead end secondary or tertiary roads were not considered for household survey as rickshaws seldom ply along them; rickshaws were seen in these roads only when residents or other people come to the houses located along these dead end roads.

The purpose of the survey was to understand the effects of ban/restriction on the users and non-users of rickshaws both at household and individual levels. In fact reflection on the households, not the road user, is one of strengths of this research. It sheds light on the mobility of the households- both at collective/household level and personal/individual level. However, the usual transport studies are solely focused on the individual, more correctly road using individual alone. Mobility studies on Dhaka also mostly surveys the road users or outdoor respondents and therefore miss the impact of rickshaw bans/restriction on the households. The World Bank Study by Zohir *et al.* (2008) on improving mobility from a gendered perspective is an example.

But it must be mentioned that experiences of the through users of a road or intersection affected by rickshaw bans/restrictions are important for conceiving the effects at household level. To include such experiences, the questionnaire has been designed with questions about the next journey, availability of modes, break of journey and associated problems, if the respondents do not use rickshaws for the entire journey. The sample questionnaire is provided in Appendix B.

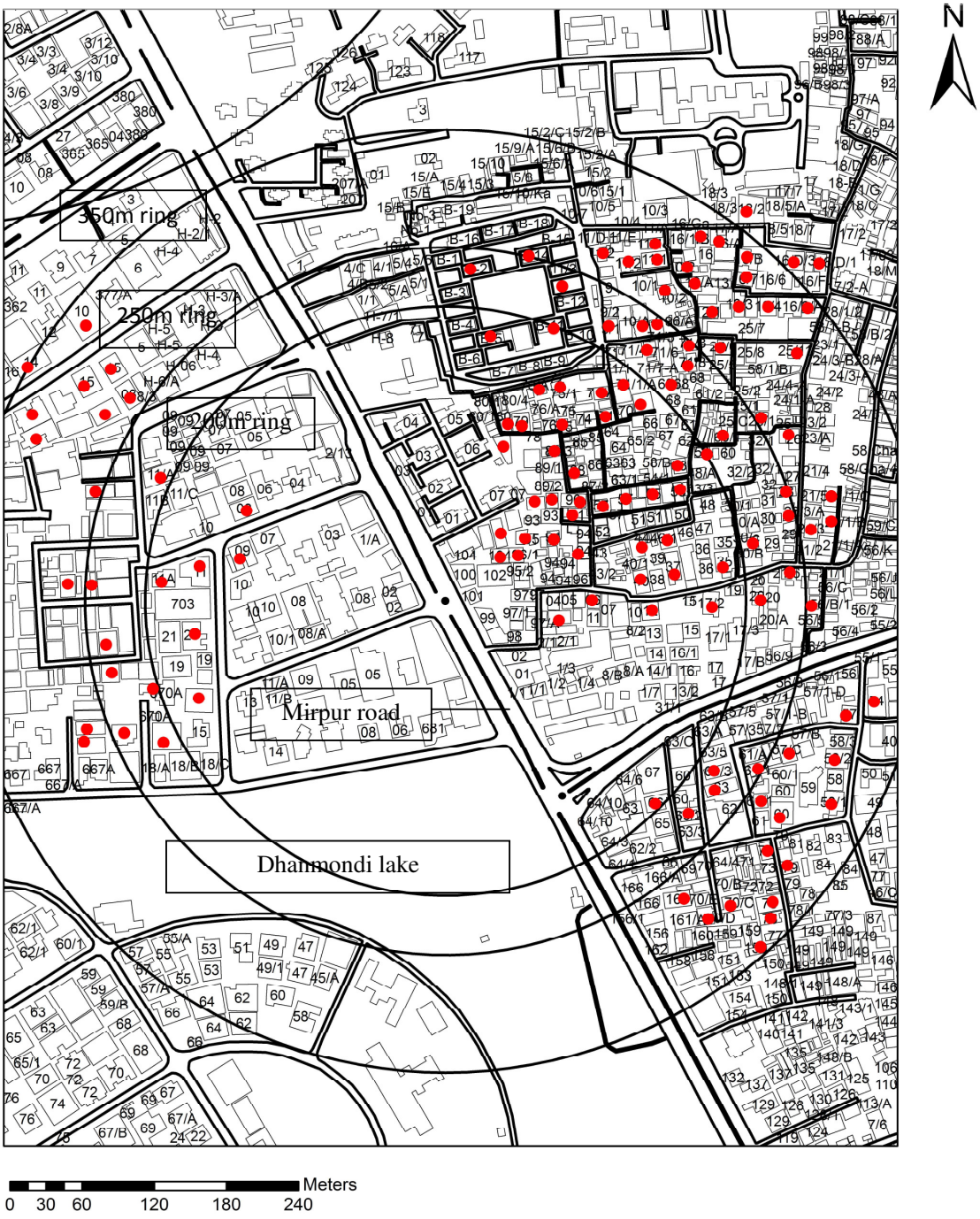
Map 2.4a: Surveyed households in the Shyamoli



*Dots represent the location of surveyed households

Source: Prepared from DAP, 2010

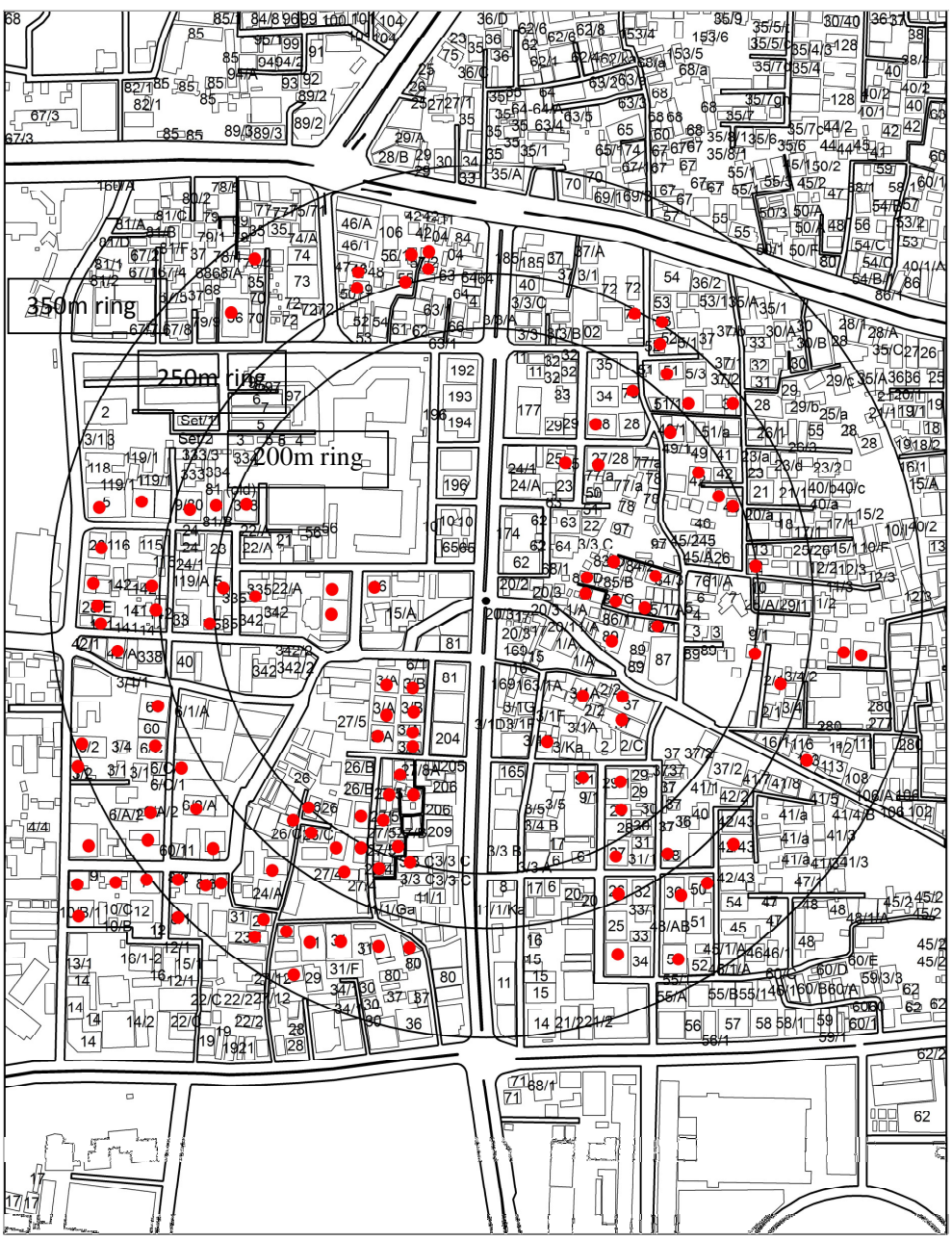
Map 2.4b: Surveyed households in the Shukrabad



*Dots represent the location of surveyed households

Source: Prepared from DAP, 2010

Map 2.4c: Surveyed households in the Bijoynogar



*Dots represent the location of surveyed households

Source: Prepared from DAP, 2010

C. Focus group discussion (FGD)

FGDs were done for a quick and collective response and understanding of the issue being researched. FGDs were done for two categories of people-

(i) Guardians escorting their children to and from (primary and secondary) schools. Four groups of guardians were interviewed in four FGDs. The groups consisted of 8-12 respondents- mainly female guardians. The discussion continued for one hour in the school premise or on the footpath or local roads where the guardians flocked together. The FGDs were done before noon- during the transition of two shifts (morning shift finished and day shift about to start) or during the finishing time (in case of one shift school).

(ii) *Rickshaw-wallas* in three rickshaw garages i.e. three groups of *rickshaw-wallas.* The FGDs took place during the evening when usually the 2nd shift starts and *rickshaw-wallas* who rent rickshaws in the 1st shift hand over them in the garage. A group consisted of 12-15 persons. As all the *rickshaw-wallas* were male, FGDs were done with male groups of different age, residence and seasonality (some are seasonal and stay in the garage and some are permanent *rickshaw-wallas* who live with their family in near/other part of the city).

D. Interviews

A series of interviews were done for a better understanding of the problem and also to tri-angulate the findings from structured questionnaires. In brief the interviews were as follows.

(i) O*pen ended* interviews of the respondents and household members

These interviews were held during explaining the questionnaire to the respondents of the household survey. The perception, feelings, experience about rickshaw bans/restrictions, current/ potential options for them to deal with the (good/bad effect of) the intervention in their existing and potential movement were discussed.

(ii) *Open ended* interviews of the road users

These were done purposively, both by the author and research assistants. Interviews include conversation with guardians/mothers escorting children to and from school, co-passengers in the public bus and co-riders in private cars (here they were either friends, relatives or colleagues of the author). They were asked about their views on the ban, about the benefits and problems created and gainers and losers (in their families and in general), and options available to them to deal with the intervention and their overall views about rickshaw and motorisation. While in some cases the whole conversation was recorded with prior permission, the rest and most were kept in writing as brief summary.

(iii) *Open ended* interviews of the road order maintainers

It was also done purposively with three traffic wardens (who can only direct traffic flows manually, bars rickshaw movement in ban/restricted roads and sometimes use 'baton power' to 'discipline' the unruly *rickshaw-wallas* and to decongest the road intersection by driving the *rickshaw-wallas* away along with their rickshaws) and one traffic sergeant (boss of the traffic wardens with authority to file court case against any breach of traffic/driving rules)

(iv) Interviews of rickshaw (garage) owners- *rickshaw maliks*

Two rickshaw garage owners- one near Shyamoli area and other near Bijoynogar area, talked about their life, business, income, renting condition/procedure of rickshaws, ban/restriction and internal support/resistance to it, relationship with DCC, Police, their associations etc.

(v) *Semi structured* interviews

Semi-structured interviews were done basically to understand the causes and conflicts of decisions regarding the ban/restriction. Their own experience/story and version of explanations were recorded (either via voice recorder or written). They were selected *purposively* or by snow-balling. The list is as follows:

- Eight experts and academics from planning (three), transport and civil engineering (two), law (two), architecture (one) disciplines.

- One consultant having worked in several transport projects and programmes in Dhaka and entire Bangladesh. He was also departmental chief of the transport wing of a regional UN body and currently involved with an independent think tank
- Two former decision makers- One was the minister for transport and communication up to 2001 (i.e. before the ban decision executed. But the project started during his time). Currently he is the editor of a national daily. The other was an economist turned adviser to the 'interim' government up to 2009. He is now (and also was) the chairman of an independent policy research think tank.
- Three officials- two from DTCB, one from DCC. One of them was the project director of the then (in fact, still ongoing) urban transport project, the other is working in DTCB for long - since the decisions of rickshaw ban till now, and therefore experienced DTCB's transition, different roles and capabilities under different persons as the bosses of the apex transport coordination (and planning) body in Dhaka. DCC official was from the department that deals with rickshaw including its licensing.
- One journalist, from a national daily, having interest/assignments in transport sector reporting.

2.6 Profile of the interviewed households (HH) and respondents

This section introduces the socio-economic characteristics of the studied locations- Shyamoli, Shukrabad and Bijoynogar. It has also tried to illustrate the representativeness of households (HH) with regard to the Dhaka city. It has already been stated that one of the key strengths of this research is collection of household information from their residence on the contrary to the use of views and information collected from the on street passengers in most of the transport studies. Therefore respondents and their households profiles and activities involving mobility are mentioned altogether, yet distinctively, in this section.

To be statistically representative of an unknown number (with 5% confidence level) a total of 385 households, 128 from Shukrabad and Bijoynogar each and 129 from Shyamoli, are surveyed (required number for all study areas was 384 and for each area was 128 (see footnote 25), in case of Bijoynogar an extra sample has been surveyed as the time, comfort and ease of the surveyors allowed). As one person from each households had been

surveyed, total number of respondents is also 385. However, In this 385 households total number of household members were 1645 i.e. average household size was 4.27 compared to 4.26 for *Dhaka Urban*[26] (BBS, 2012a:11). Out of 385 respondents 80% were male and only 20% were female. This is absolutely unrepresentative[27] of the sex ratio in the national and *Dhaka Urban* context (Table 2.1). However, if the sex ratio of the household members are examined (Table 2.1) similarity to the city ratio is observed.

Table 2.1: Sex ratio of the households members in the study areas, Bangladesh and the *Dhaka Urban* area

	Shyamoli	**Shukrabad**	**Bijoynogar**	**National**	**Dhaka urban***
Female (%)	47.5	46	44	50	44.5
Male (%)	52.5	54	56	50	55.5
Sex ratio (number of Male Per 100 female)	111	117	127	100	125

Source: Field survey, 2012; *BBS 2012:11

More than 80% of the respondents were young and middle aged: 43.5% in the 26-40 years age group and 43.3% from 41-60 years age group; only 0.5% below 17 years (Appendix C, Table C.1). So, considering the age, response of the respondents can be regarded as authentic.

Work types of households of the respondents show (Figure2.1, Appendix C, Table C.2) that more than one-third of them were working in non-government (and non-business) sector while self employment (business, working in own farm, private practitioner) was the second highest type of work. House-keeping (13.2%) was the third largest type of work for respondents; all the respondents doing house-keeping were women. As less than 1% of respondents were working in informal activities, like hawking, it was the smallest sector for respondents' work following grocery and petty business (2.2%). As it is already stated in section 2.4.2, there was no slum in study areas and these were mainly middle class areas, very low percentage of people working in informal sector, grocery is not surprising.

[26] Comprised of Dhaka City Corporation, and 3 other small municipalities. Population and Housing census, 2011 has distinguished these area in Dhaka district form non municipal areas named as Other Urban Areas (OUA). As per the census report (BBS, 2012a) Out of 1,20,43,977 people in Dhaka district, 74,23,137 live in *Dhaka Urban* area whereas rest are in OUA.

[27] See scope and limitations of the research in section 1.7 for an explanation for lower number of female respondents in the household survey.

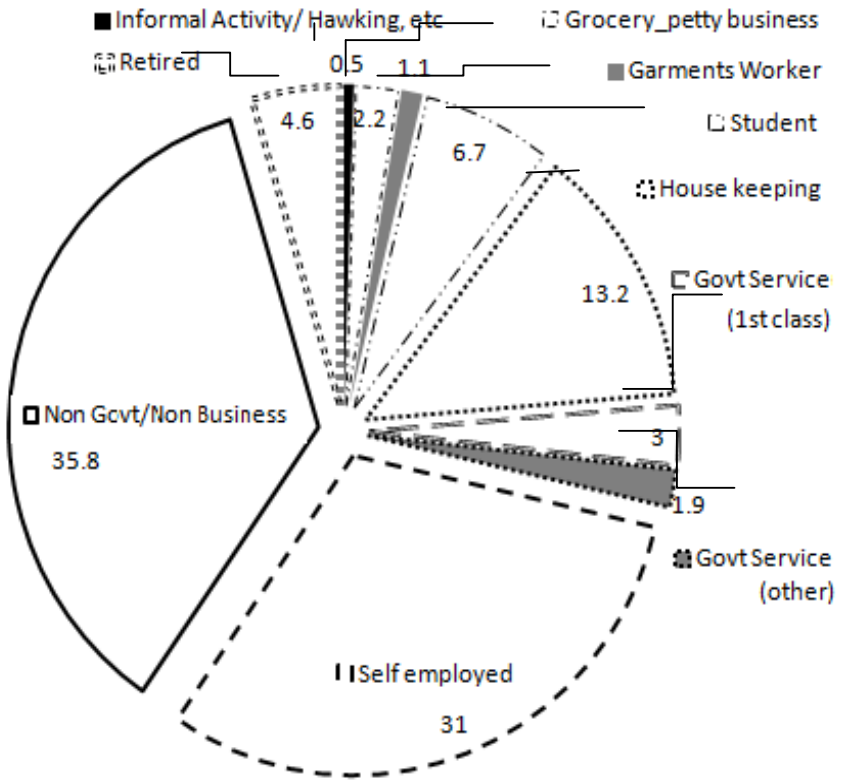


Figure 2.1: Work types of the respondents (numbers represent percentages to the total)
Source: Field survey, 2012

As regards educational qualification, more than 60% of the respondents had university (graduation) and higher level of qualification, while only 0.8% was illiterate; 2.8% had primary education (Figure 2.2, Appendix C, Table C.3). For the whole Dhaka district the percentage of illiterate people is just below 30% (BBS, 2012:11) and for *Dhaka Urban* (DCC plus other municipal areas) illiteracy rate is just above 25% (BBS 2012b), So, it should be admitted that the study areas were comparative more educationally qualified than average.

Since there was no slum in any of the study areas, the proportion of low income people was much lower in the study areas compared to the Dhaka Urban Area Transport Study (DHUTS) area[28] average. Whereas in DHUTS area 'low' income[29] households (earning

[28] DHUTS conducted HH survey on 16394 samples in DCC area and 1716 samples around DCC area. So out 18110 samples, 91% was from DCC area and rest 9% from outside DCC area (JICA, 2010:3-7).
[29] This research has made no definition or classification of income group in Dhaka; only mentioned/followed the classification developed in JICA (2010), JICA classification is shown latter in figure 2.5.

upto Tk. 19999 per month) was the highest (39.8%), in all the study areas this group had the lowest presence; in fact, much lower than DHUTS average (Figure 2.3, Appendix C, Table C.4 and C.5). For DHUTS area 'low' and 'middle' (Tk. 20000-49999/month) income households were almost same. But in Shukrabad 'middle' and 'high' (Tk 50000 and above per month) income groups were almost same, whereas in Shyamoli 'middle' income group was approximately double of the 'high' income group; the picture is reverse in Bijoynogar. So with respect to the DHUTS area the study areas were richer, no doubt. However, if the comparison could have been made with DCC area[30] the difference could have been milder; the average income in each group for study areas and for DCC area (Table 2.2) supports the anticipation.

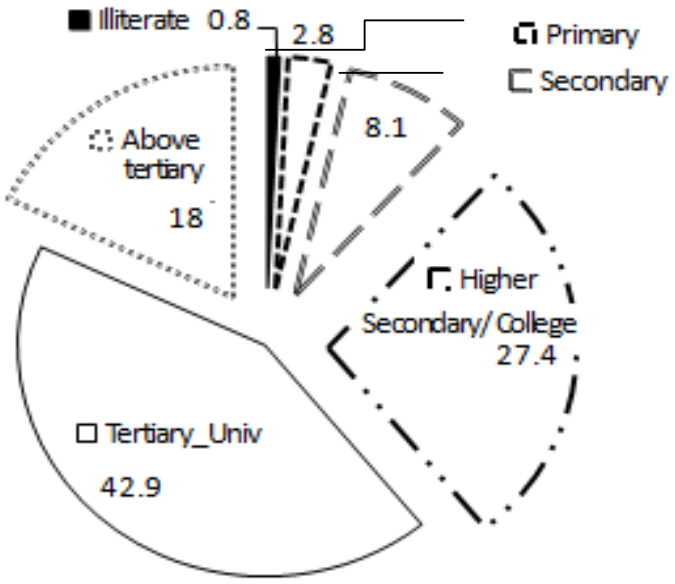


Figure 2.2: Educational qualification of the respondents
Source: Field survey, 2012

46.7% of the households in all the study areas lived in the house below the size of 1000 sq ft; in Shyamoli, Shukrabad and Bijoynogar the figures were 57.4%, 53.9% and 28% respectively (Appendix C, Table App C.6). In absence of data for the size of all houses in Dhaka, size of the real estate housing can be mentioned; only 13% of these houses are of

[30] Processed data on income group distribution for DCC area is not readily available in JICA, 2010 nor in any other source, to the best of the author's knowledge.

the size1000 sq. ft or less (Seraj, 2012:42). Of the households, 41% were the owner of the house. Respective figures for home ownership in *Dhaka Urban* is 18.2% (BBS 2012b:1) and for real estate housing is 67% (Seraj, 2012:48).

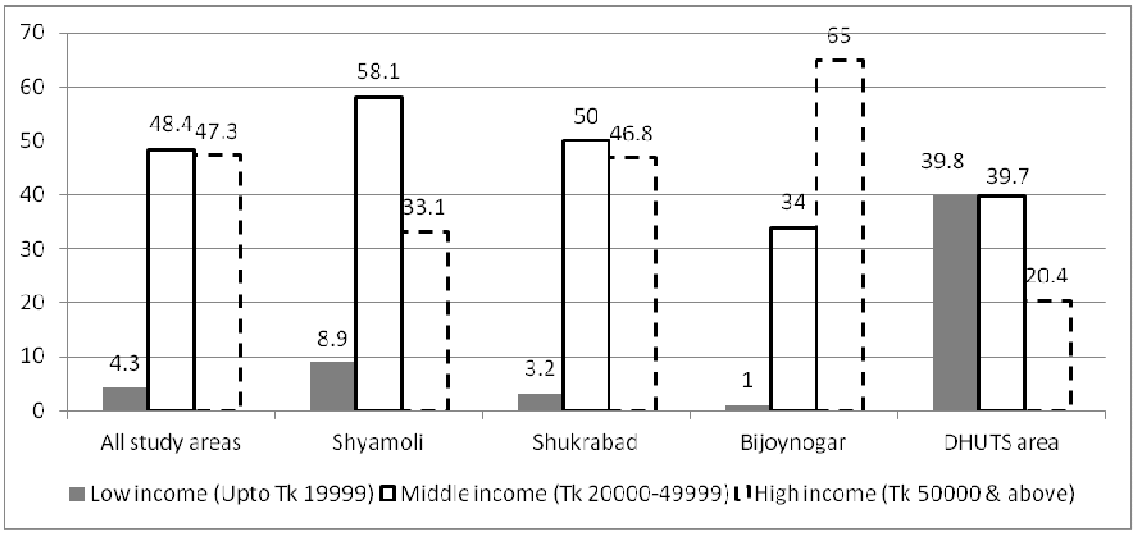


Figure 2.3: Household distribution (in percent) according to the income* level
Source: Field survey, 2012; JICA, 2010:3-9 *See footnote 29

Table 2.2: Average household income (in Taka) in the study areas and the DCC area

Income group*	**Shyamoli**	**Shukrabad**	**Bijoynogar**	**DCC area***
Low (Upto Tk. 19999)	13727	15500	8000	12006
Middle (Tk 20000-49999)	31958	36000	34257	29340
High (Tk 50000 & above)	63122	72034	87500	83715
Mean	40645	52352	68790	33691

Source: Field survey, 2012; *JICA, 2010: 3-11 *See footnote 29 (US$ 1=Tk. 77.75)

On the whole 28% of households were living in the study areas for more than 10 years i.e. since 2002 when the first ban was imposed on Mirpur road. For Shyamoli, Shukrabad and Bijoynogar the figures were 24%, 16% and 56% respectively (Appendix C, Table C.7).

On the whole car-ownership in the study areas was 30/100 household or 70/1000 population[31]. Although Shyamoli has the highest percentage (58%) of 'middle' income

[31] As stated in the 2nd paragraph of section 2.6, the average household size in the study areas is 4.27. So average car-ownership 30/100 households is equivalent to (30/100*2.60)1000 = 70/1000 population.

households, Bijoynogar had the highest percentage (65%) of 'high' income households, and for Shukrabad both figures for respective income groups were almost same (Figure 2.3); car ownership in these three areas were almost similar (Figure 2.4; Appendix C, Table C.9). In fact, for Shukrabad and Shyamoli the figures were almost same.

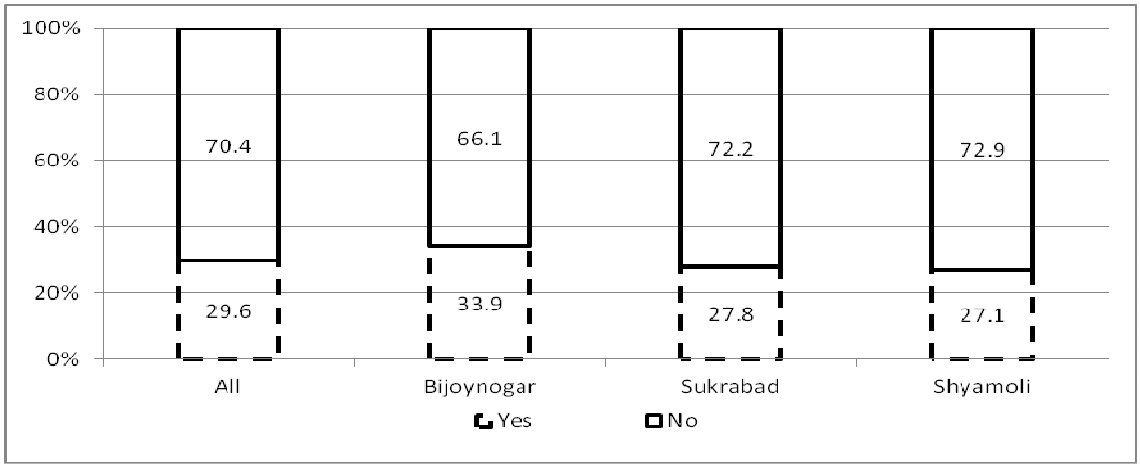


Figure 2.4: Car ownership of the households in the study areas
Source: Field survey, 2012

However, in Dhaka overall car ownership is not high. As per, Strategic Transport Plan (STP) for Dhaka car ownership figure is 13/1000 population (STP, 2005c:s-5). If car ownership is represented with respect to the number of households, the figures are 6/100 households (authors calculation) in 2005[32] and 11/100 household (author's calculation) in 2012[33]. (Although, among the residents of real estate developers provided multi-storeyed housing car ownership rate is 64% (of the households) (Seraj, 2012:49)[34]). In fact, Bangladesh is not a that much motorised country if compared to global data. Global country-wise data of motor vehicle ownership (per 1000 population) for the period 2008-2012 are as follows: Pakistan 18, Thailand 157, Malaysia 361, Maldives 28, Mexico 275,

[32] Due to absence of any specific data, STP calculates the figure by dividing the registered private cars in Dhaka by the then population in 2005. Respective figures for household size in *Dhaka urban* in 2001 and 2011 are 4.64 and 4.26 (2012a:11). So, for 2005 the figure is calculated as the mean of the two, which is 4.25. Then the car-ownership/100 household = {(13/1000)*4.25}*100 = 5.785 i.e. 6.

[33] BRTA 2013 [http://brta.gov.bd/images/files/dhaka_statistics_01_04_13.pdf on 28th April] states that till 31st December 2012 registered private car in Dhaka metro area (although not equal to DCC area, but most vehicle registered in Dhaka metro ply in DCC area) is 182614. From BBS (2012b) population for 3 municipalities (Savar, Dhamrai and Dohar) and Savar cantonment area is calculated to be 390022. BBS (2012a:11) states population of *Dhaka urban* 7423137. So population in DCC area = population (Dhaka Urban - Other municipalities & cantonment) = 7033115. Now car ownership in DCC area = 182614/7033115 = 25.96 i.e. 26 per 1000 people. Using household size 4.26 in 2011, car ownership/100 household becomes 11.07 i.e.11.

[34] In 2010, Shyamoli, Dhanmondi (a very small segment of it is within the study area) and Shegunbagicha (a very small segment of it is within Bijoynogar study area) respectively contained 2%, 2% and 8% of total real-estate developers provided private housing in Dhaka (Seraj, 2012:37).

Myanmar 7, Singapore 149, Bangladesh 3; for the period 2003-2007 the figures for India, Pakistan and Bangladesh 18, 18 and 3 respectively[35]. Yet, the study areas with car ownership 70/1000 population shows a different picture compared to regional (Dhaka), national and other developing countries' averages.

If car ownership in the study areas is compared with income levels, it is found that for 'middle' and 'high' income households in the study areas the figures were 9/100 households (or 21/1000 population) and 54/100 households (or 126/1000 population) respectively; no low income household owned any car (Appendix C, Table C.8). It indicates the dependence of 'high' income households, who were almost half of the total households (Figure 2.5), on car based mobility.

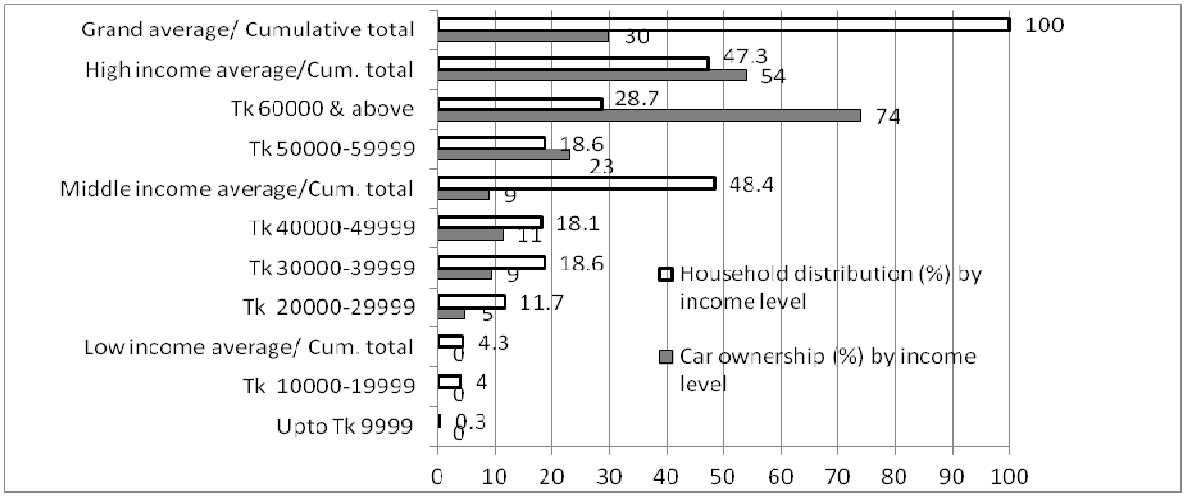


Figure 2.5: Household distribution and car-ownership by income level in the study areas
Source: Field survey, 2012

More importantly, for the top tier in high income group, car ownership - 74/100 household or 173/1000 population- is abruptly high, if compared to average of all study areas or average for Dhaka or even to the average of some other developing counties mentioned earlier. (However, such high car ownership is similar to that of the households residing in real estate housing in Dhaka). Car ownership of the upper tier (Tk 40000-49999/month) in the 'middle' income level, was exactly equal to the DCC average, while the rest two tiers of the 'middle' income level, who were nearly one-third of the total households,

[35] Source: http://data.worldbank.org/indicator/IS.VEH.NVEH.P3 accessed on the 16th September, 2013. Here motor vehicles include cars, buses, freight vehicles, but do not include two-wheelers; population refers to midyear population in the year for which data are available.

owned less cars than the DCC average. So the households in lower two tiers in 'middle' income group were more dependent on other modes (Figure 2.5).

Figure 2.6 shows that 'high' income group is the main car user in DHUTS area; among the two tiers in 'high' income group shares for car based trips for the lower and higher tiers were 10% and 34% respectively. For the highest and lowest tiers in 'middle' income group shares of the car based trip were 8% and 1% (approximately)[36]. So, the statement regarding dependence of 'high' income groups on private car is strengthened.

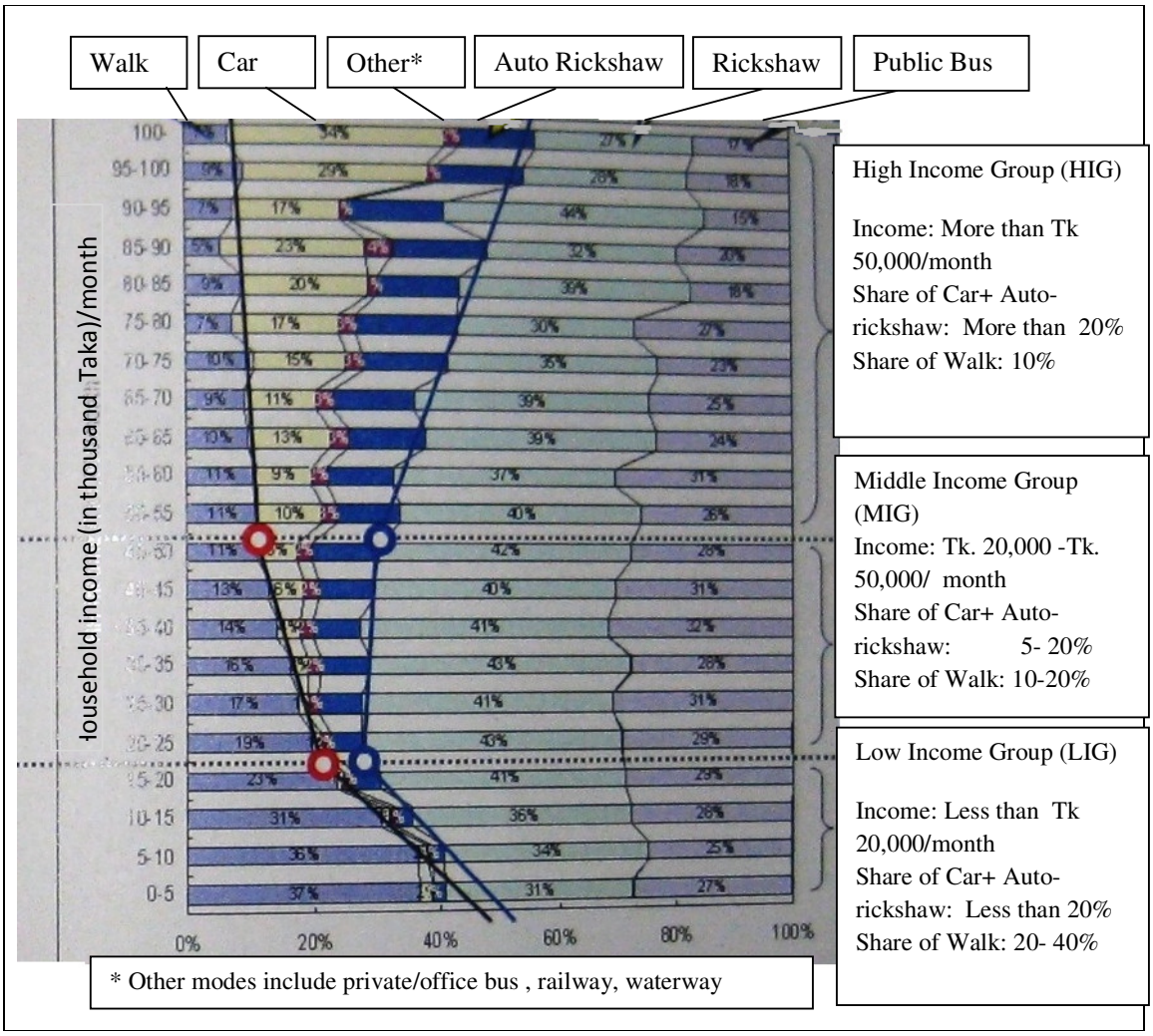


Figure 2.6: Modal choice by income level* in the DHUTS area

*US dollar equivalent of income level defined in JICA (2010): high income group- more than US$ 643/month ,middle income group- US$ 257 to 643/month and low income group- below US$ 257/month.
UK pound (GBP) equivalent of income level: high income group- above GBP 432/month , middle income group- GBP173 to 432/month and low income group- GBP173/month.

Source: JICA, 2010:3-9

[36] Car based trips does not necessarily mean car ownership, particularly for middle income group.

Car ownership was also examined with respect to size of the house and length of stay of the respondents in the study areas. Out of 175 households living in houses below the size of 1000 sq. ft., only 6.28% households had cars whereas for households in houses of 1000-1199 sq.ft., 1200-1499 sq.ft. and 1500 sq. ft. and above figures for car-ownership were 32%, 50% and 80% respectively (Appendix C, Table C.10).

For households living in the areas for less than 10 years car-ownership rate was 21% while for those living there more than 10 years the respective figure was 52% (Appendix C, Table C.11). So, it can be argued that those who have decided to stay in the study areas, despite and after rickshaw bans and restriction, or those who are permanent residents i.e. owners of houses in the areas opted for buying cars after the ban, if they already did not have car. In fact, table C.12, in Appendix C, shows that, 61% of the home owners in the study areas had cars, while only 7% of the tenant households had cars.

The argument of forced car-ownership can also be supported by Figure 2.7 (also see Appendix C, Tables C.13 and C.14), which shows that a wave of buying cars came 2-5 years ago i.e. between 2007-2010 (note that field survey was done in 2012). Particularly in Shyamoli and Shukrabad located along the Mirpur road - where the first rickshaw ban decision was executed in 2002 - 40 to 48% cars were bought in the period. It may be said that once the services like taxi cabs, temporary bus services were either withdrawn or vehicles in those services went out of order after a couple of years of the bans, the crisis in *mobilities* reached such a height, households had no other way but to opt for buying cars.

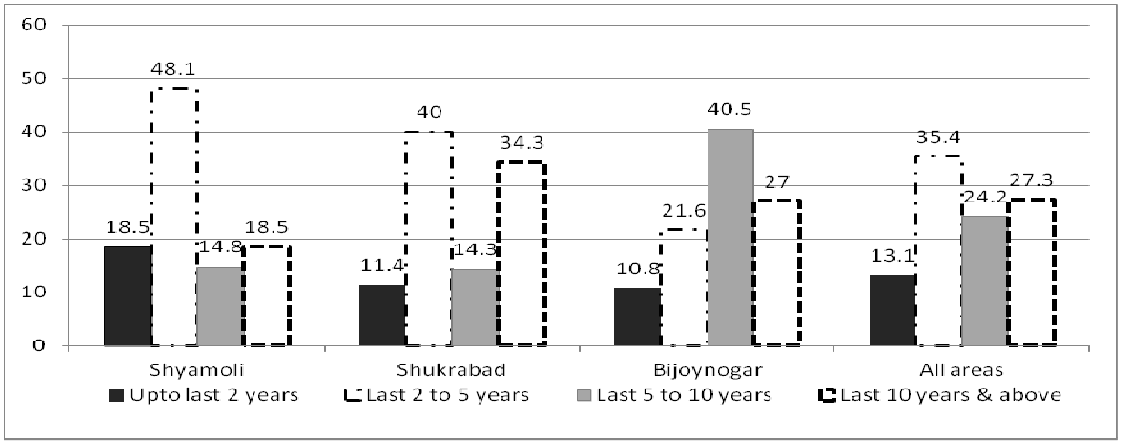


Figure 2.7: Distribution of length of car-ownership in the study areas
Source: Field survey, 2012

2.7 Main *Time-bound (routined)* and main *time-flexible (other)* activities of the household members- *existing* and *potential mobilities*

Figure 2.8 shows the distribution of all household members according to their main *time-bound (routined)* and main *time-flexible (other)* activities (the two types of activities are defined in section 1.8. Also see footnote[37] below). The figure depicts that majority of the members reported 'going for work' and 'going to school/study'- about 41% and 37% of the total respectively- as their main *time-bound (routined)* activities followed by 'carrying children to school' and 'going for daily shopping'; these activities shared 87% of the total activities (Appendix C, Table C.15). Distribution of the members in three study areas according to their main *time-bound (routined)* activities also show similar pattern (Appendix C, Table C.15a).

This is also revealed that 'visiting family, relatives and friends' were on the top among the main *time-flexible (other)* activities, followed by 'going for non-daily shopping' and 'daily shopping' activities. More than 20% of the total members mentioned each of these three activities as their main *time-flexible (other)* activities and their cumulative share is 72% (Appendix C, Table C.16). Top three main *time-flexible (other)* activities in three study areas are same, except changes in the chronology (Appendix C, Table C.16a)

Quite naturally among the main *time-bound (routined)* activities work, education and accessing community facilities related activities (e.g. daily shopping) are on the top of the distribution chart and for *time-flexible (other)* activities social/recreational (e.g. visiting family, relatives and friends) and accessing community facilities related activities (e.g.

[37] *Time-bound (routined)* activity refers to the activities which are done regularly (in most cases at 4/ 5 days a week) at specific time. *Time-flexible (other)* activity refers to the very common activities but not done exactly at the same time. For example a mother in the household may go for work, accompany children to school, for kitchen and other shopping etc. Among these activities she may be going for work on the weekdays regularly at a fixed time. She may also be dropping her child to school in every alternate day while going for work and rest of the days the child is accompanied by father. Most of the shopping for the family is done by her, as her husband may be coming from work lately at night; but timing and place for shopping may be flexible. Now, for this mother going to office is the main *time-bound (routined) activity*, accompanying child to school is the 2nd t*ime-bound (routined) activity*. On the other hand going to kitchen market is the main *time-flexible (other)* activity, going to non-kitchen shopping is the 2nd *time-flexible (other) activity*.
The classification of activities by households members as *time-bound (regular)* and *time-flexible (other)* is argued to be useful for this research. As distinction is made between *existing* and *potential mobilities,* activities are also required to be differentiated. This research argues that *time-bound (regular)* activities falls in the category of existing mobilities, i.e. whatever is the situation these activities are always taking place; little scope to change the mobility pattern- time, frequency, destination. But *time-flexible (other)* activities are in many cases not mandatorily done; sometimes although required, users may skip it as situation (road condition, weather, availability of modes or accompanying person, etc) does not permit. This study has investigated if such omission of activities has taken place in the study areas due to rickshaw bans/restrictions, and argues that thus if happened, these (time-flexible) activities will fall into the category of potential mobilities. Thus this research seeks to examine which type of mobilities and activities are benefitted and obstructed by the ban/restriction decision.

daily and non-daily shopping) are on the top. Strikingly, figure 2.8 shows that rest of the activities, both for *time-bound (routined)* and time-flexible (other routined) activities, were very low than the top ones. It is indicative of limited daily activities and hence less mobility of the household members.

In fact, in DCC area a person makes on an average only 2.74 trips per day (JICA, 2010:3-12). Out of all the trips made in DCC area, purpose wise distribution: home to work 16.1%, home to school 10.4%, to home 41.5%, non-home based business 9% and private[38] 22.9% (JICA, 2010:3-14)[39]. Trip production rate and purposes are almost same for all the income groups in DCC area. For medium income group it is rather smaller (2.73) than the DCC average (Appendix C, Table C.17) indicating comparatively more stress on their *mobilities*.

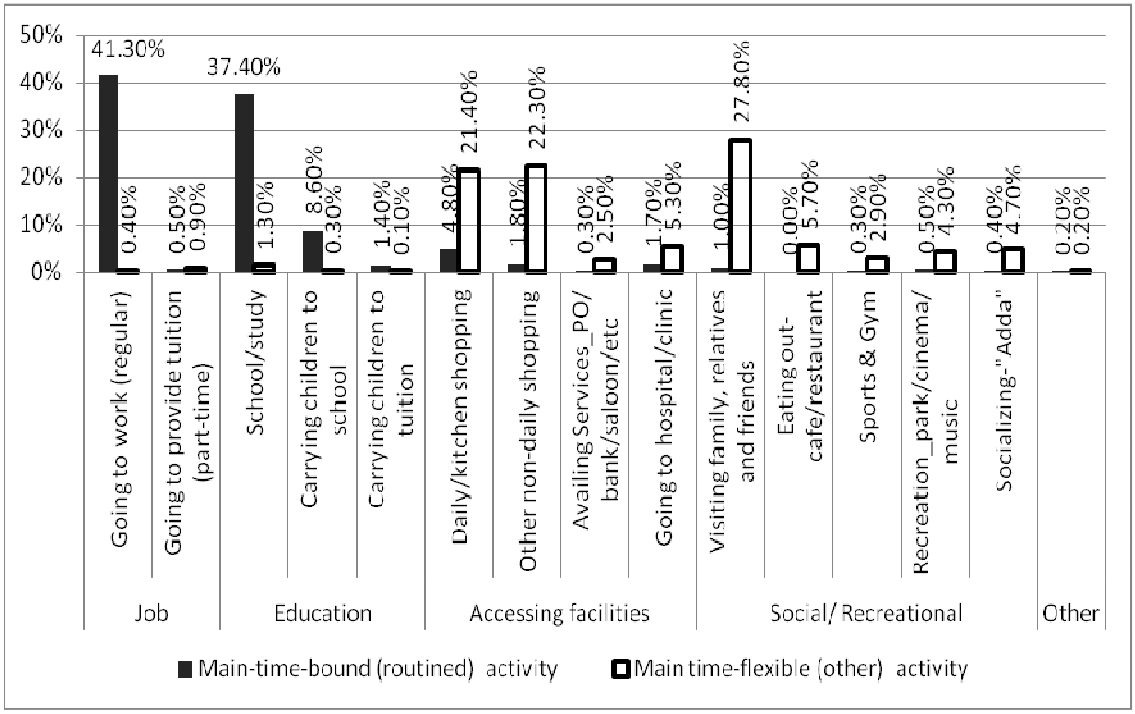


Figure 2.8: Distribution of all household members by their main *time-bound (routined)* (1132 responses) and main *time-flexible (other)* activities (936 responses)
Source: Field survey, 2012

In such a condition, it can be argued that, in the study areas work, education and shopping related activities were those which cause revealed *mobilities*, termed by Kaufmann (2004)

[38] Private trips include trips to attend social, recreational activities, accompanying other persons/ household members,
[39] It should be noted that trips in JICA (2010) study included both way journeys. Therefore 'to home' trips share nearly half of the total trips. But this research is concerned with activities, not trips, and has not identified journeys to home as any activity.

as '*existing mobilities*'. Whatever the modal option and associated conditions, this type of mobility will occur. On the other hand, share of activities like accessing community facilities, doing or attending social/recreation activities were very low compared to activities mainly causing revealed/*existing mobilities*. During the focus group discussion with guardians (mainly mothers) in the school premises and several open-ended interviews with the households members and road users, it has been found that these less performed activities can be increased once conditions including modal options become favourable. So, for many other respondents and their households members these activities were latent (i.e. did not take place in the then condition) but could happen and cause further mobility in the area or could make them more mobile. Therefore, following Kaufmann (2004), these activities (e.g. accessing community facilities, doing or attending social/recreation activities, currently reported mainly as *time-flexible* activities), can be termed as '*potential mobilities*'.

Household members are distributed by their main *time-bound (routined)* and *time-flexible (other)* activities and sex in figure 2.9. In case of main *time-bound (routined*) activities, it is found that other than 'work', female members were notably active in rest of the activities. Activities like 'carrying children to (private) tuition' was a 100% female activity; followed by 'carrying children to school/study', doing 'daily' and 'non-daily shopping', 'visiting family, relatives and friends', 'going to hospital/clinic' (to accompany the sick and elderly members), going for special/community services (post office, bank etc) which had more than 50% share by the female members in the households. 'Carrying children to tuition' became a 100% male job in case of main *time-flexible (other)* activities i.e. it is only occasionally done by male members, perhaps, when women in the family could not do it. Similarly, increase of the male share in most of other *time-flexible (other)* activities indicate the same i.e. households activities were in most cases done by female members, while male members mostly did the routined and work related activities. Zohir *et al.* (2008:45) also report that female share in travels for accompanying children to school is overwhelmingly higher than the male- 29% vs 5.9%; in case of travels for kitchen shopping, other shopping female share is also higher than male ones[40]. The difference in

[40] Just to mention that this study was done interviewing the road users in outdoor i.e. not based on household survey.

travel and activity pattern of women is also reported in literature on cities in other developing and developed countries (Anand & Tiwari, 2006; Root *et al.*, 1999).

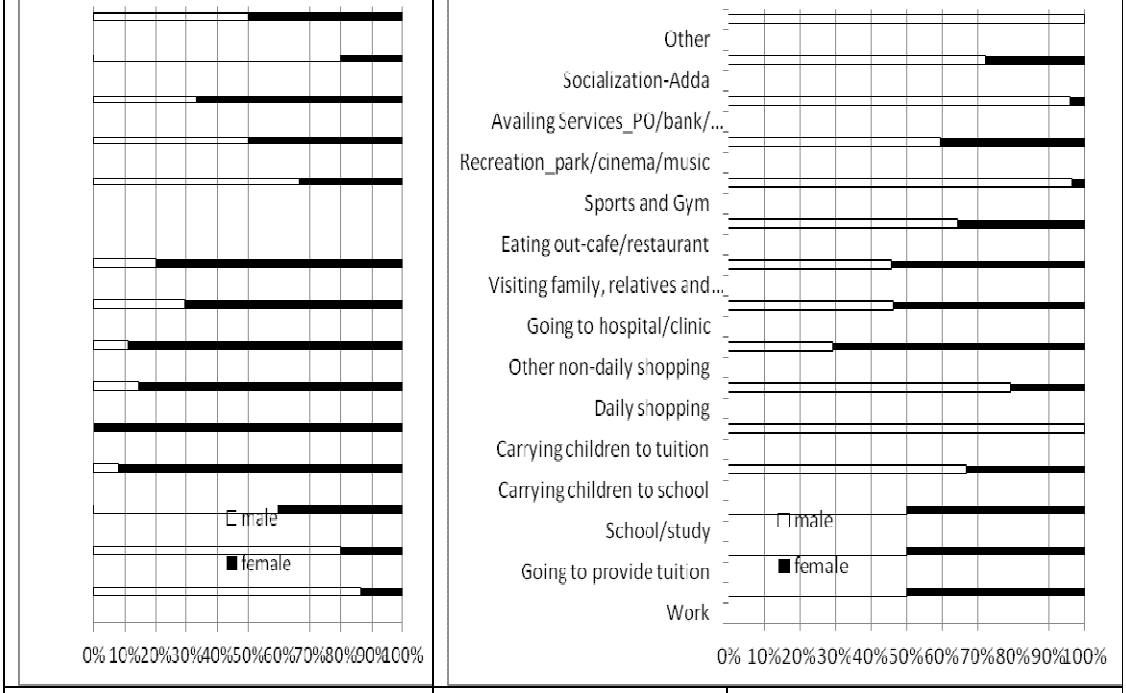


Figure 2.9: Distribution of household members by their main *time-bound (routined)* and main *time-flexible (other)* activities and sex

Source: Field survey, 2012 (Appendix C, Table C.18 and Table C.19)

From survey (tabulated in Appendix C, Table C.20) it is found that more than one-fifth of the household members were below the age of 15 years. And it has been found during the focus group discussion and open-ended interviews that children of this age group were usually escorted by their guardians, mostly by mothers, to their school/study, private tuition and other activity destinations. Again, 4% of the members are at the age of 60 years and above, which is normally the retirement age in Bangladesh. Many of the people in this group also need to be accompanied in their outdoor activities and trip. Thus, one-fourth (25.2%) of the total household members were mostly mobility dependent. People in this dependent category usually require personalised travel arrangement- be it rickshaw or car; but they cannot travel by public bus, para-transit alone. Competition with other, mainly male and young, passengers to ride on the already congested public transport is usually

avoided by people in these group and hence by their companions. (Same is also true for the female road users). So, it is not unusual that, only 4.5% (Appendix C, Table C.21) of the total main *time-bound (routined)* activities were done by the senior members. Their major (nearly half) activity was 'going for work' (work after retirement in other sector, or for some retirement age has been extended) followed by ‘going to hospital’. Interestingly, for them other activities, which were usually done by senior citizens, like accessing social services, 'visiting family, relatives and friends', doing shopping are nil or almost nil.

For the children (below 15 years of age) members of the family (21.2% of the total members) share in total main *time-bound routined* activities was 12.2% only, meaning further low mobility for them compared to the senior citizens (who were 4% of the total members and did 4.5% of the total activities). But in case of main *time-flexible (other)* activities (Appendix C, Table C.22) share of the activities done by children and senior citizens had dramatic rises- 40.3% and 8.3% respectively. This might be due to availability of companions for escorting them. It has been found during the focus group discussion and open-ended interviews that households members used to go for 'visiting family, relatives and friends', 'eating out' or for 'non-daily shopping' altogether during weekend, plus adult members used to accompany children to gym, park, recreational activities. Hence mobility dependent groups could easily take part in these activities.

2.8 Conclusion

An overview of the socio-economic features of the surveyed respondents and their households shows that majority of the households did not have cars, a good number of members were mobility dependent, many households activities were mostly done by the females. Mobility dependants and female members used to avoid public bus for excessive crowing and other problems. It has also been found that like the general picture in DCC area, a limited number of activities could be done on a single day; *'existing mobilities*' in most cases reflected the essential and main regular activities done; options for *'potential mobilities'* were high and in favourable condition those could be transformed into revealed/*'existing mobilities'*. The mixed methodological nature of this study has sought to deal with activities relevant to both *'existing mobilities'* and *'potential mobilities'*. Chapter five looks into the consequences of the bans and restrictions on the users.

Chapter 3

Review of literature on *justice*, *politics* and *mobilities*

3.1 Introduction

Two key words of this research on *just mobilities* are *justice* and *mobility(ies)*. Plus inherent in the theories of justice is the question of politics (Young, 1990; Swyngedouw & Heynen, 2003; Harvey 2003; Harvey, 1996; Harvey & Potter, 2009) which is understood in the sense of motivation and interest behind the *process* of decision making and outcomes. Based on the notion of a 'new mobilities paradigm' this research seeks to understand mobility as existing and potential movement, along with causes and forces behind the movement(s) by people and motivation for taking decisions by the decision makers that produce or cause particular type of movement(s). Thus, while the traditional notion of mobility deals with limited spatio-temporal aspects (time, frequency, distance) of the existing movement, a more comprehensive notion of mobility - described here as *mobilities* - encompasses a wide range of movements and related aspects. Now the dilemma for the planners is to decide *mobility*(*ies*) for whom (*distribution*), how (*process*) and why (*politics*). Therefore, apart from reviewing the theories of *justice* and *mobilities*, this chapter also examines the role and conflicts involved in the options and choices available to the planners. Next to this review is a discussion on the guidelines for application of principles of justice in transport planning and contexts of politics of mobilities. However, from the very beginning, it should be mentioned that focus of this research is mobility, not transport; mobility is seen to have a much bigger role in the everyday life of citizens as well as in shaping land uses, while transport system allows movement to take place.

3.2 Theories of *justice* and *politics*

Justice is usually "defined and theorised in a narrow legal sense" judging "guilt or innocence under the law" (Soja, 2010:73). But contemporary planning literature on justice shows a wide range of key words like social justice, environmental justice, spatial justice, just city, just planning etc. In fact, “a broader approach" to understand justice opens up "its attributes and meaning within a given social order and expands beyond the boundaries of the law to discuss general principles of fairness and democracy” (*ibid*:74). The

following sections elaborate the contemporary debates and development in conceptualising justice and its subsequent and final amalgamation with *process* and *politics*.

3.2.1 Conceptualising justice - different paradigms

It was Rawls (1971) who first focused on social justice and argued for equal distribution of the "social goods": liberty and opportunity, income and wealth and the bases for self respect. He offered such a broad conceptualisation that, according to Barry (1990:ixx) "raised the stakes in political philosophy to quite a new level ... with a theory of the human good, a moral psychology, a theory of the subject matter (the 'basic structure of society') and the objects (the 'primary goods') of justice, and ... an elaborate structure of argument in favour of a specific set of principles of justice".

A "very large literature on the concepts of equity, fairness and justice in the disciplines of philosophy, political theory and law ... has expanded greatly in the last three decades" (Hay 1995: 501, also see Barry 1990 for details) inspired by Rawls. Drawing on Barry (1990) and Miller (1976), studies like Hay (1995), Hay and Trinder (1991) and Trinder *et al.* (1991) have in fact attempted to distil the following key concepts:

(i) ***Procedural fairness-*** proper adherence to and uniform application of rules without discrimination, arbitrariness, inconsistency etc. It therefore requires the existence of rules (formal or informal, explicit or implicit) which will be equal for all. There is also an implication of consistency over time and space while dealing with any/every individual case. Rawls's theory of justice as fairness is founded on a notion of pure procedural justice where fair procedures produce outcomes which are by definition fair (Rawls, 1971).

(ii) ***Fulfilment of legitimate expectations-*** closely related to but rather wider than procedural fairness. It argues that people make decisions and perform actions on the basis of reasonable expectations and that any arbitrarily imposed changes in the conditions or rules on which those expectations were based would be unjust or unfair (Campbell, 1973

quoted in Hay, 1995). There is no necessary element of interpersonal comparison in this concept.

(iii) ***Formal equality*** (also known in economics as ***horizontal equity)*** requires that like benefits (or burdens) be enjoyed (or suffered) by like persons in the same reference group. It differs from the concept of procedural fairness in that the rules, themselves subject to criticism, however fairly and consistently applied are nevertheless unjust because they result in disproportionate benefits or burdens.

(iv) ***Substantive equality*** sees equality of final outcomes (net aggregates of burdens and benefits) i.e. welfare, allocated resources, final income, use, cost etc. It therefore permits the breach of formal equality and procedural fairness if the net outcome is more equal (less unequal) than would otherwise have been the case. In a geographic context it would require that studies of justice look behind spatial distributions to the choice sets, constraints and information fields from which they arise (Hay, 1995:502). It is the clearest justification for positive discrimination policies but is also the most difficult formulation to defend[41].

(v, vi *and* ***vii) Basic needs, need as demand*** *and* ***wider need -*** Certain needs are so **basic** that failure to meet them is an injustice. However, as things are most often needed as a means to an end (not as ends in themselves) needs must be justified in terms of the equity or fairness of the end states (which goes back to substantive equality). ***Need as demand*** is defined as a want backed by a willingness to pay (Culyer, 1980). The final and ***wider need*** implies "a move from necessary minima to a positive conception of needs to be met" and is also found in "Marx's dictum 'from each according to their capacities, to each according to their need'" (Trinder *et al.,* 1991:34).

(viii and ix) Liberty rights and ***Claim rights***- the idea of rights may be used in the sense that justice is upheld where individuals receive their entitlements. ***Liberty rights*** speak for

[41] The difficulties are threefold, as per Hay (1995:502): (a) inequalities in physical quantities received may be the consequences of the exercise of choice by individuals; (b) equality in physical quantities received may nevertheless result in unequal utilities because different individuals have different utility functions; (c) as Young (1991:18) argues, the emphasis on distributions implicitly assumes a static conception of society, which tends to "ignore, at the same time that it often presupposes, the institutional context that determines material distribution "

rights of choice i.e. absence of encroachment on personal freedoms and the correlative duties of tolerance. ***Claim rights*** are the positive affirmation of rights to provide something (e.g. health care, education, etc.) to the right holder[42]. **"**This benefit or interest notion of rights lies behind the UN Declaration of Human Rights, including the rights to social security, work, equal pay, fair wages, adequate standard of living and education alongside civil and political rights**"** (Trinder *et al.*, 1991:35-6).

(x) Deserts[43]**-** allocation of 'rewards' and 'punishments' based on having or lacking particular merit, quality or ability or contribution to the common good.

However, Rawlsian theory has a long list of critics. A critical problem arises while defining the limits of individual responsibility for leading to a proposal for just outcomes which is "ambition-sensitive but not endowment-sensitive", and for equalising human capabilities or resources rather than welfare (Smith, 2000a:2-4). In fact, for conservative thinkers, Rawls is seen as sacrificing too many individual rights and liberties, while as per radical critics, he has not gone enough, leaving almost untouched the major sources and causes of inequality (Soja, 2010:75). The debate rumbles into the new millennium, in an argument for giving priority to improving the well being of those who are badly off and not substantially responsible for their own condition (Arneson, 2000).

As the 1970s proceeded, serious challenges to liberal egalitarianism emerged (Kymlicka, 1990; Smith, 1994)- most strongly from Marxism, suspicious of social justice under capitalism but not entirely clear about post-revolution outcomes (Smith, 2002). Miller (1976) claims that a liberal conception of justice tends to reflect the prevailing social relations, and argues for a more egalitarian conception of justice than traditional theories

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[42] Although "rights constitute an important element in a number of accounts, (Rawls (1971) uses liberty rights; Clark (1982) uses property rights), they are not often used as the basic argument because they are demands themselves" (Hay, 1995:502)

[43] As per http://www.thefreedictionary.com/deserts (accessed on the 6th July, 2013)
The word 'deserts' has different meaning and pronunciation. As for the principles of justice following meaning and pronunciation stated in the website is relevant

"**de·sert** (d**ĭ**-zûrt)
n.
- Something that is deserved or merited, especially a punishment. Often used in the plural: *They got their just deserts when the scheme was finally uncovered.*
- The state or fact of deserving reward or punishment".

propose. Even explicitly socialist or Marxist discussions of justice often fall under a distributive paradigm. Nell and O'Neill (1980), quoted in Young (1990), assume that the primary difference between socialist justice and capitalist liberal justice is in their principles of distribution.

Another challenge to the Rawlsian concept came from communitarianism. Walzer (1983) argues that meaning of goods subject to distribution could vary with social and cultural context, requiring different distributional principles. Rawls has also been criticised by feminists for impersonal rights and rules of traditional (masculinist) perspectives. The most searching challenge from feminism has been the ethics of care, initially proposed by Gilligan (1982), which prioritises responsibility to particular persons in need.

During the 1980s, various critiques of social justice began to search for the differences in terms of disability, ethnicity, gender, past-colonial status, sexual orientation. "Cultural domination supplants exploitation as the fundamental injustice. And cultural recognition displaces socio-economic redistribution as the remedy of injustice and goal of political struggle" (Fraser, 1995:68).

The exposition of the politics of difference by Young (1990) notably argued for the need to contextualise justice in more concrete geographical, historical and institutional terms. "[S]ocial justice… requires not the melting of differences, but institutions that promote reproduction and respect for group differences without oppression" (Young, 1990:47). In essence, Young was substituting a multisided concept of oppression, and hence injustice, through five distinct but interacting forms: (i) exploitation (matter of class, Marxist view) (ii) marginalisation (obstructing participation, access to resources and impacting on quality of life), (iii) powerlessness (draining away for power, voice, access etc.), (iv) cultural imperialism (dominance by one group/culture to diminish/evict the other) and (v) violence (relates to social/institutional practice that tolerate, if not encourage acts putting certain group/individual in danger). Social justice thus involves "equality among groups who recognise and affirm one another in their specificity" (Young 1990:248). Such a perspective resonated with the emerging spirit of multiculturalism and toleration of "alternative" ways of living.

In the process there has been an “erosion of the sense of human sameness or close similarity”, on which the case for egalitarianism rests (Smith 2002:71). However, later on a growing movement to revisit some arguments for equality grounded in essential characteristics of human being which have been subdued by preoccupation of difference (Smith, 2000b). In fact “the struggle for black civil rights in the United States as well as that against apartheid in South Africa were more a case of the universalist notion of equal moral worth encountering particular social construction of difference” (Smith, 1998:36-7). Thus, some common features continue to characterise theories of social justice: first, a common concern for distribution of means of human well-being, despite differences in primary goods, capabilities, opportunities and basic needs); second, a concern for equality, despite differences in race and gender; third, a concern with the structure of the society and its institutions, despite differences in aspects of social identity and relations (class, culture, citizenship) (Smith 2002:71).

3.2.2 Theories of justice and politics - one complementing the other

A contemporary conceptualisation of justice incorporates politics as an integral concern. On the other hand, politics, itself an independent and old discipline of study, has also concern for just distribution and process- two pillars of justice. Urban politics, a distinct branch of politics has particular significance in this review of literature on justice.

Politics is the “art of arranging” (Stone, 1989:xii) or a "capacity to structure the relationship" governing communities or societies (Stone, 2005:311). Following Cresswell (2010:21) by politics this research means "social relations that involve the production and distribution of power". This power based socio-ecological relations, that shapes the formation of urban environments, constantly shifts between groups of actors and scales; therefore histo-geographical insights into urban configurations are necessary for the radical political-ecological urban strategies (Swyngedouw & Heynen, 2003). "A just urban socio-environmental perspective, therefore, always needs to consider the question of who gains, who pays and to ask serious questions about the multiple power relations - and the scalar geometry of these relations - through which deeply unjust socio-environmental conditions are produced and maintained" (Swyngedouw & Heynen, 2003:898). Moreover there is a simultaneous “nested” yet sometimes hierarchical power relationship at spatial

scales (Jonas 1994:261; Smith 1984, 1993:87-120) within and between social groups based on gender, class, ethnicity or even ecology (Swyngedouw & Heynen, 2003). Such a "process based approach" to understand differential access and appropriation of the power helps to study the scale capabilities of individuals and social groups to actively contribute, either positively or negatively, to the 'metabolisation' of urban environments and draw attention to the mechanisms of scale transformation through "social conflict and political struggle" (Swyngedouw & Heynen, 2003:913).

Structuralist objections to Rawlsian welfarism in geography centred on the claim that the 'distributional perspective' ignores (and thus prevents understanding) the role of the political-economy in causing territorial injustices (Johnson *et al.*, 1994). Some post-modernists and feminists have claimed that sources of injustice are rarely locally-specific, with whole societies, even the globe, subject to structural sources of disadvantage, such as economic exploitation and racism (Mendus, 1993).

Fainstein's concept of 'just city' (see section 3.2.3) has also been criticised for being less sensitive to structure of the political economy: "From the start it delimits its scope to acting within the existing capitalist regime of rights and freedom and is thus constrained to mitigating the worst outcomes at the margins of an unjust system ... Fainstein's emphasis on the discursive and inspirational role of the Just City avoids the necessity for outright conflict and struggle" (Harvey & Potter, 2009:46).

However, Harvey (1993) "has offered a measured response to the postmodernist critique of universals, such as social justice", drawing heavily upon Young's (1990) five 'faces' (or sources) of oppression in capitalist societies, by arguing for an "inclusive notion of justice which draws upon a range of social affiliations and viewpoints, thus avoiding the tendency of certain modernist approaches to impose a general moral outlook" (Glesson, 1996:230-1). Moreover, in his recent reflections on Lefebvre's classic essay- *The Right to the City*[44], Harvey (2003:939) asserts that "the right to the city is not merely a right of access to what already exists, but a right to change it after our heart's desire"; more candid on the role of politics in justice.

[44] See the collection of Henry Lefebvre's works selected, translated and introduced by Kofman & Lebas (1996)

Glesson (1996:231-2) argues that a "just geography would explicitly commit itself to socio-spatial justice" defined as a "fair distribution of the benefits and burdens which arise from the human transformation of nature ... would, however, only be a starting point as justice must extend to the nature of distributive processes mechanisms for allocation of social surplus" to ensure what Young (1990) called the material, psychic and cultural well-being of people.

Moreover, conceptualisations of spatial justice have also been criticised for not giving adequate attention to power structures and the consequent politics producing injustice. Conflation of injustice and distribution signals a liberal spatiality in which space is seen as a platform upon which social processes and relations unfold and a container for social practice, rather than as a social structure arising out of existing power relations (Soja, 1980, 1999; Smith, 1984; Harvey 1996). Distributive understandings of justice articulate and are articulated by an ontology of space in which space itself is figured as prior to distributive projects (Kobayashi & Ray, 2000), and relationships between environment and marginalised communities are characterised as fixed spatial configurations and correlations (Teelucksing, 2002). Such an implicit separation of space from active social practice serves not only to naturalise certain processes and relations by associating them with passive spaces, but in so doing imposes depoliticised, banal geographical relations over existing (and always already political) ones (Stanley, 2009:1000). Critiques of distributional thinking and their liberal character are now well known, not only in the environmental justice literature (see in particular Heiman, 1996; Pulido, 1996, 2000; Warren, 1999; Kobayashi & Ray, 2000; Schlosberg, 2004), but also in scholarship about justice (see Minow, 2001; Mackinnon, 2001; Young, 1990). Criticising concept of environmental justice for its focus on distribution and being indifferent to process and politics, Stanley (2009: 1000) observes: "Many of the problems ... throughout the long history of internal and external critiques in the discipline [environmental justice], consistently linked to distributional, liberal explanations of injustice". Whether implicit or explicit, *distributional* conceptions of justice as an explanation of injustice and model of environment–society relations not only prevents consideration of social relations and processes, but also obscures and normalises existing structural inequalities (Minow 2001; MacKinnon 2001; Young 1990; Warren 1999; Kobayashi and Ray 2000; Pulido 2000).

Feminist political theorists' familiar argument is that difference should "displace" distribution as the analytic focus of justice: "denial of difference" is the basis of oppressive relationships and structures (Young, 1990:10). More specifically, Young situates production and normalisation of difference at the root of oppression and (in)justice, suggesting that the universalisation of a dominant group's experience and culture (as the norm in relation to which judgments are passed) constructs the differences which mark some groups as "Other" and therefore subject to differential treatment and exploitation (Young 1990:59). Differences between people, however, are "always constructed within existing power relations and oppressive social formations" (Sharma 2006:28). Production of difference is further a process of "normalising the dominant identities and claims" against which some experiences and realities are differentiated (Stanley, 2009:1003).

Since the early 1960s, scholars in urban politics have criticised urban decision-makers for policies that "exacerbated the disadvantages suffered" by poor, females and other weaker groups (Fainstein, 2010:3). But recently research on cities has taken a "political turn" where studies "not only look at the causes and patterns of urban inequalities but they also show a growing interest in explaining how such globalisation-generated inequalities are politically managed" (Kanai, 2010:1887). A particular concern is to envision how more egalitarian outcomes may be democratically reached in urban regions that evidence significant structural transformations in their economic functions and physical shape due to processes of neoliberal or market-centric globalisation (Purcell, 2007). With an agenda that has expanded widely over the past three decades, current research efforts engage with a new politics of spatial justice and social inclusion for cities in a world that the capitalist system has integrated functionally (Soja, 2000; Purcell, 2002; Sassen, 2002; Robinson, 2006; Irazabal, 2008, 2003a; Gonzalez, 2009).

In fact, studies in urban politics and justice need to account for the various actors implicated in the process through polymorphic, multidimensional, and complexly interwoven social agencies and spatial practices. Harvey (1982, 1996), Logan and Molotch (1987) have shown how the contestation of urban space is (actually and essentially) an extension of struggles over differing values and ideologies. But it should be remembered that "just as the economy involves more than buying and selling consumer goods, so the

polity involves more than the pressures and counter-pressures on discrete policy choices" (Stone 1982:276). Decision-makers and decision-making bodies do not act in a vacuum; rather they are parts of a broader social system managing a set of possibilities and constraints (Zunino, 2006). Dahl (1961) is first to state that there is no single elite who dominates, rather many different interests make a group to exercise power in urban decision making.

In contrast to the pluralist view espoused by Dahl and others, structuralists are primarily concerned with the economic and functional limits of local government and primarily consider the power of (local and global) capital in shaping the politics of urban development (Strom,1996; Sassen, 1991). The process, as Feagin and Smith (1987:5) observe, can best be understood by analysing cities in terms of their "transnational linkages ... within the world capitalist economy, its multinational firms and its processes of economic restructuring". Molotch (1993:31) concludes: "[c]oalition with interests in growth of a particular place (large property holders, some financial institutions, the local newspaper) turn government into a vehicle to pursue their material goals". Again Shefter (1985), Elkin (1987), Stone (1989, 1993), Mollenkopf (1983) have embraced pluralist understanding of (private and public) interest articulation and coalition building without completely abandoning structural (economic and institutional) constraints giving way to the 'regime theory' of urban politics. Urban regime analysis emphasises social stratification as a source of social and economic coalition building and explores how they work against open and penetrable arrangements which are relatively stable, cross-sectoral, informal and productive (Stone, 2005, 2001).

In this connection it is worth reflecting on the contemporary literature on informality. It is argued that informality has a serious implication for decision making process and associated politics in an urban context. De Soto (1989, 2000) defines informality[45] as "extra-legal behaviour", in between legality and illegality, of stakeholders whose ends are legal but means are proscribed by inefficient bureaucracy, exorbitant charges, unjust laws,

[45] Lewis (1954, quoted in Soliman, 2004:178) categorised the economy of under-developed countries into two sectors- formal and informal. Hart (1971 quoted in Soliman, 2004:178) talked about formal and informal income opportunities in the economy of developing countries. ILO (1972) popularised the term 'informal' as a particular type of income generating activities in the developing economies.

or arbitrary administrative decisions. On one hand, urban informality indulges the marginal people in the city to live and have livelihood. (In fact, conventional thinking on informality - which talks about mainly informal settlements - depicts poor as the main beneficiary). On the other it is informality that helps the powerful or their allies to take 'extra-legal' advantages which, in many cases, cost and cause miseries to the general and marginal stakeholders. It is argued that "the rich and powerful" take more benefits "than the poor" using the informal windows and scopes (Bromley, 2004: 277) and the "techniques of informalization simultaneously enable and stall projects of populism and developmentalism" (Roy, 2004a:160). So when informality is defined as 'extra-legality', politics of informality is reshaped. In Roys (2004b:289) words: "The political economy of urban informality is thus also the politics of representation; the poetics of representation is thus also the geopolitics of late capitalism".

3.2.3 Different notions of justice in practice

Harvey was one of the first geographers to adopt the Rawlsian analysis, compressing distributional and procedural justice into "a just distribution justly achieved" (Harvey 1973:116). Rawls's formal analysis has helped frame an ongoing exploration of spatial justice among geographers like Reynolds and Shelley (1985), Walzer (1993), Smith (1994). Walzer's (1993, in Harvey 1996:350–51) description of "radical particularism" is close to the notion of procedural justice: "justice is rooted in the distinct understanding of places, honors, jobs, things of all sorts, that constitute a shared way of life. To override that understanding is to act unjustly". Harvey (1973) specifies two conditions for just distribution of urban infrastructure. While his first condition urges for the distribution of income to help people overcome special difficulties stemming from the physical and social environment, the second one calls for distributive mechanisms themselves to be such that the prospect of the least advantaged territory is as great as possible. Thus, everyone's physical integrity should be guaranteed to a minimum level of material well-being, including those basic needs that must be met in order to remain a normal functional human being.

Hay (1995:505-6) has identified three notions concerning geographers while conceptualising justice in a "spatial or territorial context: spatial equality, territorial justice

and minimum standards". Spatial (in)equality appears in most studies to combine elements of equal choice, formal equality and substantive equality based on comparison of gain/receipt or outcome of anything in different areas. Territorial justice is similarly an amalgamation of concepts like need, formal equality and substantive equality. Minimum standards involve specification of certain minimum needs to avoid injustice (and thus relates directly to the concept of need)[46].

Still difficulties arise while applying a distributional and procedural justice concept in a geographical or spatial context. Spatial, areal or geographical "uniformity may be observed even where there have been serious breaches" in justice (Hay 1995:503). For example, a region may have a gross and unjust distribution income at household/individual level. Yet if the proportions in each income category are identical in all sub-regions and at all scales there will be no spatial evidence of that inequality (*ibid*). This should not, of course, exclude the examination of such injustice from a full geographical description and analysis of the character of that region; rather it also necessitates to look into the politics of regional disparity.

In fact, in the course of time clear differences have also emerged between "Rawls' formulation and Harvey's trajectory of justice" (Bailey & Grossardt, 2010:66). Power and class in their geographical specificity are critical preconditions from which justice emerges ideologically and how it is then operationalised (Harvey, 1996). This dialectical materialist reasoning leads to a geographical environment that is an active agent in human socio-economic and cultural systems (Harvey, 1996). Critical cultural geography's approach has been to play one off against another, arguing that power controls process and thus creates unjust distributions through the use of just processes (Smith, 1997).

Although Harvey's early formulations introduced territorial distribution, spatial structure and environment into a discourse of social justice it was hitherto devoid of geographical

[46] The concept of minimum standard can also be "expanded to incorporate spatial and temporal dimensions as minimum accessibility standard: it must be available within travel distance X and with maximum delay Y (however X and Y may be measured). An advantage of that approach is that it refers to the level of provision available to individuals and is therefore less dependent upon the use of aggregates for arbitrarily defined geographical units. Furthermore, it can be operationalised in a form which allows the establishment of a hierarchy of standards to be used to identify the depth (not just the spatial extent) of unmet need and therefore to establish priorities for intervention" (Hay, 1995:506).

content and he soon shifted his focus to the more specific scale of situ and its mechanisms of distribution based on Marxism (Smith, 2002). However, apart from Harvey (1973) and Young (1990), as Smith (2002) argues, there has been very little theoretical progress explicitly directed to the city. But recently justice "seems ... back on the geography agenda". (Glesson,1996:229). Issues of social justice have increasingly been raised in the field of development studies, while the notion of environmental justice has also broadened the scope of normative discourse (Smith, 2000c:Ch8-9).

The American environmental justice movement and related studies have much increased public awareness of injustice and unsustainable environmental trends at the local level (Wenz, 1988; Farber, 1998; Sze, 2006). Beginning in the US South in the 1980s, poor, often rural, African-American communities fought landmark struggles against some of the world's largest corporations and unresponsive government agencies (Bullard 1993a, 2000, 2005, 2007; Roberts, 2007; Fujita, 2009). "The movement originally defined itself as against "environmental racism" and then expanded to include Hispanic, Native American, and poor white groups facing environmental injustice in local contexts" (Fujita, 2009:378). Environmental justice also seeks the distribution of the benefits and costs of environmental resources according to principles of justice. More recently, environmental justice studies have applied the concept to metropolitan regions (Bullard, 2007) and on a global scale (Roberts, 2007). In fact, having faced the question if all justice is environmental, Hamlin (2008:145) answers that "may be not all, but a great" and thus he broadens the concept from "inequitable distribution of environmental beds: toxic wastes, often from synthetic organic compounds, ... [to] the environs of communities occupied by poor persons, minority groups, and groups otherwise marginalised [such as lacking] technologies of sanitation".

Moreover, a number of environmental justice scholars have recently argued the need to "widen" and "extend" definitions to improve their conceptual reach (Kurtz 2003; Debbane´ & Keil, 2004; Schlosberg 2004, 2007; Pellow & Brulle, 2005; Haluza-DeLay 2007; Pellow, 2007; Stanley, 2009:999). They have identified several shortcomings: "numerous theoretical inadequacies" while conceptualising injustice (Schlosberg, 2004:527); a distinct lack of attention to how environmental inequalities and racisms are

actually produced (Pellow, 2000:587); inability to consider the institutional, cultural, or symbolic causes of injustice (Schlosberg, 2004:518; Mascarenhas, 2007:676; Page, 2007:617); and repeated failure to account for the political and spatial contexts of injustice (Teelucksingh, 2002, 2007, Debbane´ & Keil, 2004, Hanson, 2007:601).

After the 1990s there seems to be some shift in theorising justice from a social to a spatial dimension. Dikec (2001, 2007), Swyngedouw (2001, 2005) and others started to link justice with space- a third dimension after time (history) and society (process). As Swyngedouw (2005) states: "the question of justice cannot be seen independently from the 'urban condition', not only seen because most of the world's population live in cities, but above all because the city condenses the manifold tensions and contradictions that infuse modern life".

Purcell (2008) presents an insightful re-evaluation of Lefebvre's ideas surveying the recent literature and cautioning against any reductionist interpretation of the call for a radical urban metamorphosis. In an insightful turn of phrase, Purcell calls the right to city, especially in its sense as a right to occupy and inhibit space, an organisational and mobilising 'linchpin', suggesting that it forms an integrative umbrella for coalition building, a kind of connective tissue or 'glue' that can help to unite diverse and particularised struggles into larger and more powerful movements.

Finally, Soja (2010), in *Seeking Spatial Justice*, very strongly tries to establish a theory of spatial justice. In his view, geographies and histories are "socially produced and not simply given to us by God or nature"; geographies of spatialities can be just as well as unjust, and they are produced through processes that are simultaneously social and spatial, subjective and objective, "concretely real and creatively imagined" (Soja, 2010:104). Thus geographies in which we live can have "both positive and negative effects ... provide advantage and opportunity, stimulate, emancipate, entertain, enchant, enable ... can also constrain opportunity, oppress, imprison, subjugates, disempower, close off possibilities" (*ibid*:104).

As has been stated earlier (in section 3.2.), Fainstein (2010:3) espouses the idea of a 'just city' defining it as "a city in which public investment and regulations would produce equitable outcomes rather than support those already well off". In the western neoliberal context Fainstein (2010:165) searches answers to the questions: (i) what are the qualities of a just city? (ii) to what extent have those been realised? (iii) what are the social forces, politics, planning and policies that shaped the realisation and (iv) what strategies are to be followed at a sub-national level and what institutional/social movement is required to improve the social justice record of the cities. Finally she proposes an urban theory of justice emphasising equity, democracy and diversity.

Thus, combining a normative, scientific and critical theorisation of injustice as a social product leads directly to the debates about democracy, citizenship, and fundamental human rights to participate in the politics (of the city-states) as well as its social, cultural, religious and economic activities (Soja, 2010:74-75). Attempting to draw together the global justice, environmental justice and human rights movements, the World Charter for the Right to City, as quoted in Soja (2010:106), begins by recognising that the city "is a rich and diversified cultural space that belongs to all its inhabitants," and that everyone "has a Right to the City free of discrimination based on gender, age, health status, income, nationality, ethnicity, migratory condition, or political, religious or sexual orientation, and to preserve cultural memory and identity".

Contemporary to the concept of 'just city' is the concept of 'urban justice'. Fujita (2009:377-381) observes that both as "a moral and a political concept" 'urban justice' "includes the unequal distribution of income and wealth, spatial housing segregation, uneven allocation of public goods and services, and unfair exercise of political rights, along lines of class, race, ethnicity, and gender in the context of communities, cities, and metropolitan regions. Consequently, the concept of a just city and a progressive city has been around but there is no concept of a just and sustainable city. Bringing sustainable development into urban justice studies is a growing and urgent trend ... But ultimately, it is a question of political will whether communities, cities, and metropolitan regions of the world can commit themselves to sustainable development and to eradicating urban

injustice by fundamentally changing the way we produce, consume, and allocate resources".

3.3 Theories of mobility- *mobilities*

This section sheds light on the reasons for movement, identifies the limitations of traditional understanding of mobility as physical movement and explains the new paradigm of mobility - *mobilities*. It also seeks to reconcile mobility and accessibility within the same concept with the help of 'new mobilities' paradigm.

3.3.1 Why do people move?

There are so many reasons for people to move: work, education, food, health, recreation, social and religious needs etc. Based on Urry (2004:31-32, 2003:163) six different obligational perspectives can be summarised:

(i) Formal (legal, economic, and familial) obligations- to go to work, public office, visit professional, attend family events (social, religious).
(ii) Social obligations (less formal but often involve strong normative expectations) of physical presence and attention to hear, observe, read and sense some 'firsthand' and emotional work with friends and family for developing extended relations of trust.
(iii) Time obligations -spend moments of 'quality time' with specific person(s) often within very specific locations, may involve lengthy travel (away from normal patterns of work and family life) and even a special environment.
(iv) Object obligations- to be co-present to sign contracts or to work on or to see various objects (related to household and official work) in a specific physical location.
(v) Obligations to place- to sense by oneself a place or a certain kind of place 'directly' - such as walking within a city, visiting a specific building, making adventure at 'leisure places'.
(vi) Event obligations-to experience a particular 'live' event programmed to happen at a specific moment like rallies, concerts, matches, celebrations, film premieres, festivals, etc.

Daily mobilities in an urban setting includes all the obligations, stated above, in a specific temporal, spatial and social setting. The setting is subject to factors like subjective

meaning, control and power which eventually determine modes used and distance travelled (Hjorthol, 2008:194-5). Moreover, as the obligations stated may be overlapping and multiple for a single person, Hjorthol simplifies and states that people move and travel because they:

(i) *Want* to change place for different reasons,

(ii) *Can* have access to time, money and modes and

(iii) *Have to* do so to fulfil different obligations.

3.3.2 Reconciling the old transport planning debate of mobility versus accessibility

A common question and/or confusion, generating from the conservative definition of mobility in transport planning and engineering studies, is which one should be in focus - mobility or accessibility? There is no doubt that the benefits accruing from the development of (and access to) new transport facilities and/or activity centres will depend crucially on the question of accessibility (Vickerman, 1974; Martens, 2006). Although used interchangeably, two different forms of accessibility have been distinguished in the literature: (i) person accessibility- a person having accessibility (or not) to a certain set of locations and (ii) place accessibility- an activity location being accessible (or inaccessible) for a certain set of people or from a certain set of other locations (see Pirie 1979; Kwan 1999; Miller, 2007). "Person and location accessibility are thus each other's mirror image" (Martens, 2012: 1040). Apart from many other things like physical ability, time, permission, it is transport, means and options for mobility provided by it, that links person and place accessibility.

But, if people find themselves in circumstances where their home location relative to transport services (speeds, distances to stops) and their available mobility tools (car ownership/access, public transport, season ticket ownership) increase the costs (i.e. the psychologically weighted sum of travel times, out-of-pocket costs and comfort) relative to the population average, then they are less likely to engage in travel and society, at large (Schonfelder & Axhausen, 2003:273).Therefore, persons or households with the same level at accessibility to locations may differ in other kinds of accessibility depending on their own condition (socio-economic etc) and transport options, and experience problems in actually accessing the destinations. All these make them different (the other) with

respect to those who can get access to destinations and also may be excluded from the activities. Naturally, these socio-spatially excluded people are also unable to accomplish many of the mobilities required for effective social participation (Shove, 2002:1). So, this is not only a question of the diversion of existing journeys from one destination to another by changing relative accessibilities, but also of the impact which overall accessibilities to all destinations can have on the entire mobility pattern, trip generation, distribution, and mode choice (Vickerman, 1974:675) of a cross section of people.

In this connection it should be mentioned that current developments in transport related exclusion studies (Church *et al.*, 2000; Clifton, 2003; Froud *et al*., 2002; Hodgson & Turner, 2003; Kenyon *et al*., 2003; Lyons, 2004; Shove, 2002; Ureta, 2008) have also acknowledged the need for combined understanding of mobility and accessibility dimensions. Kenyon *et al.* (2002: 210-11) define transport related social exclusion as the process which prevents people from "participating in the economic, political and social life of the community because of reduced accessibility to opportunities, services and social networks, due in whole or in part to insufficient mobility in a society and environment built around the assumption of high mobility" (Kenyon *et al*., 2002:210–211). Lucas (2012:105) has urged "to reflect on the extent to which a social exclusion approach to the research of transport disadvantage has been successful in opening up new avenues of research enquiry and/or identifying new theoretical perspectives and/or methodological approaches".

In fact "[m]obility's accessibility function" (Kenyon *et al.*, 2002: 212) requires more physical mobility and thus enhances social mobility (DETR, 2000:5). Again some people need both to be able to travel more and to accept the need to travel more if they are to be socially 'included' (*ibid*). There is evidence that the possibility of choosing jobs in locations outside the main employment zone, choosing off-peak working hours jobs (part-time and shift work, requiring low skill and hence low paid, with a predominantly female workforce) or access to education and training opportunities, leisure activities, hobbies and pursuits can be constrained by mobility difficulties like lack of accessible, affordable and available transport (Kenyon *et al.*, 2002:212).

Like accessibility, mobility can also be viewed as a social service (Cahill, 1994), facilitating social interaction and participation, whether at the destination or during the journey. As mobility has an important social function, lack of mobility can reduce access to formal and informal social networks, increasing isolation and separation not only from goods and services but from social activities, family and friends (Kenyon *et al.*, 2002:212).

So, "what is at stake is not mobility in itself, but mobility in relation to the accessibility to certain places and people when needed" (Madanipour, 2003:185). Emphasis is required to be given both to overall accessibility and total mobility in the broader conceptualisation of *mobilities*. It will also help reduce, if not remove the confusion (accessibility or mobility?) while studying inequality and unfairness in distribution of transport services and associated processes.

3.3.3 Beyond movement- rethinking mobility

Mobility of people are described by the following terms: residential mobility, migration, travel-tourism and business travel, and lastly day-to-day displacement/commuting (Schuler *et al.*, 1997, in Kaufmann *et al.*, 2004:748). In fact, discourses on the concept of mobility have traditionally described it as physical movement (operating in the domains of geography, urban planning and transport) on one hand and a change in social status on the other (a sociological construct) (Uteng, 2011:6). However, in an increasingly mobile world the overwhelming mobilities of the people have added new "dimensions, dependencies and dynamics" to the understanding of (social and spatial) mobility along with creating "conceptual confusion" (Kaufmann *et al.*, 2004:745). Kaufmann *et al.*, (2004:748) observe that most studies of mobility are deficient in at least two ways- (i) spatial mobility studies tend to focus on space-time rather than on the interaction between actors, structures and context, (ii) many spatial and social mobility studies are merely limited to actual and past fluidity and ignore the potential movement (which might reveal possibilities and constraints of movement along with wider societal consequences of social and spatial mobility.

However, Mayers (2005, quoted in Uteng, 2011:6) contends that "from the 80's, this barrier started to melt away with numerous attempts from both sides to integrate approaches and to mutually get involved into scientific discourse". In a socio-geographical context, to explain the production of mobility, Cresswell (2001:20) espouses mobility as a movement that is socially produced and varies across space and time exerting visible effects on people, places and things, and the relationships between them. Jones (1987:34) puts forth three components to express mobility:

- *Individual action:* observed movement or travel;
- *Potential action:* journeys that people would like to make, but cannot due to limitations in the transport system and/or their own temporal, spatial or financial constraints; and
- *Freedom of action:* which may never manifest in action, but gives the individual options from which to select and the knowledge that he/she could do something.

Knie (1997, quoted in Uteng, 2011:6) introduces a related understanding of the concept, and emphasises that mobility is about the *construction of possibilities for movement*, rather than actual traffic. Sørensen (1999) notes that mobility refers to the real or symbolic performance of the provision of physical movement in society. Nijkamp *et al*. (1990: 22-24) argue that mobility analysis should be undertaken on a broad scale in the context of the following four themes:

- *Socio-economic*: influences of exogenous socioeconomic conditions upon spatial patterns of interaction;
- *Technological*: changes in the technological environment affecting spatial behaviour of individuals or groups;
- *Behavioural:* motives, constraints and uncertainties facing individuals, households and groups when taking decisions regarding transport, communication and mobility; and
- *Policy analysis:* evaluation of actions, usually the application of policy instruments or measures of decision making agencies regarding transport.

Other than academic literature, efforts (World Bank, 1996; TRB, 2001; OECD, 2002) have also been made to build a new concept of mobility to redirect any consistent planning efforts to enhance the overall mobility patterns in urban areas. European research (TRANSPLUS, 2003; SCATTER, 2008) pioneered the development and application of a

new mobility concept to monitor the implemented policies and strategies. The search for a new mobility concept is now reaching other continents (Gudmundsson, 2001), including developing countries.

However, mobility, unlike movement, is a contextualised phenomenon (Uteng, 2011:6). To highlight the historical and cultural basis and diversity of mobility Sørensen (1999) coins the term 'mobility regimes' consisting of the physical shaping of cities and landscapes, the available transport systems and modes, the relationship between mobility and economic, social and cultural activities and the meaning attributed to mobility. Besides, regulatory rules, financing agencies, technologies, land use patterns and aspects of human behaviour contribute to make them much more complex (Richardson, 2005).

"These reflections from theoretical insights suggest that mobility cannot be analyzed in a purely instrumental, objectivist mode and that it remains a subjective dimension differing with the distribution pattern of the constituent resources. ... *Mobility,* thus, emerges as an enabling characteristic, a sought after rather than given 'good/commodity'. The understanding of mobility has thus crossed the narrow confines of speed and distance... [rather] has permeated the areas of politics, economics, history, social setup, popular culture, access, travel behaviour and movement in understanding the creation of identities, empowerment, conversions into social norms and the circulation of these through time and space. It brings forth the asymmetries of power and opportunities which might elude a pure transport focus, and therefore ... builds on the theme of 'mobility' of which the dimension of 'transport' is a subset" (Uteng, 2011:6).

3.3.4 From mobility to mobilities - a new paradigm

Mobility is an evocative keyword for the twenty-first century and a powerful discourse creating its own effects and contexts (Hannam *et al.*, 2006:1). Multiple usage of the term mobility in diversified ways in disciplines like sociology, tourism, anthropology, transport, geography, transport-geography, transport planning, spatial/land use/ town planning, migrations, diaspora and remittance studies have also resulted in several notions about different types of mobilty: 'time-space compression' (Harvey, 1989), 'death of distance' (Cairncross, 1997), speeded-up 'liquid modernity' (Bauman, 2000), the growth of an

'internet galaxy' (Castells, 2001), and as well as the 'globalisation' of economic, social, and political life.

Hannam and colleagues (2006:2) observe that globally mobilities are increasingly criss-crossed by stakeholders like tourists, workers, terrorists, students, migrants, asylum-seekers, scientists/ scholars, family members, business people, soldiers, guest workers, etc. producing and intersecting a more "'networked' patterning of economic and social life, even for those who have not moved". Urry (2004:27) identifies five highly inter-dependent nature of the *mobilities* that form and reform social life, bearing in mind the massive inequalities in structured access to each of these: (i) *corporeal travel* of people for work, leisure, family life, pleasure, migration, and escape, (ii) *physical movement* of objects delivered to producers, consumers, and retailers, (iii) *imaginative travel* elsewhere through images of places and peoples on television, (iv) *virtual travel* often in real time on the Internet, so transcending geographical and social distance and (v) *communicative travel* through person-to-person messages via letters, telephone, fax, and mobile phone.

Therefore, replacing the single notion of mobility, a 'new mobilities paradigm' (Sheller & Urry, 2006a), has been formed within the social sciences; a number of key texts and edited collections have been launched (Cresswell, 2010:17). The term and concept of 'mobilities' encompasses both the large-scale movements of people, objects, capital and information across the world, as well as the more local processes of daily transportation, movement through public space and the travel of material things within everyday life making it central to many lives, organisations and governments (Hannam *et al*., 2006:1). In fact, the 'new mobilities paradigm' has exploded a diverse array of works including a new - broader and diversified - conceptualisation of mobility (Hannam *et al.*, 2006; Kaufmann, 2002; Sheller & Urry, 2006a; Urry, 2007) and those works in sociology of mobility (Braenholdt & Simonsen,2004; Urry, 2000), geography of mobility (Cresswell, 2006a; Cresswell & Merriman, 2008), right based mobility (Cresswell, 2006b), gender based mobility (Uteng & Cresswell, 2008; Silvey, 2004), particular forms and spaces of mobility ranging from driving and roads (Beckmann, 2001; Merriman, 2007; Urry, 2004) to flying and airports (Adey, 2004a, 2004b), technologies (Sheller & Urry, 2006b). There is a "mobility turn" in contemporary flow or movement studies in social science from an

integrated, broader and diverse perspectives recognising mobility as 'physical movement and contain[ing] social meanings' manifested in a politics of mobility (Henderson, 2009:70).

3.3.5 Conceptualising mobilities

From the discussion above, it is evident that a broader conceptualisation of mobility is required to dissolve the mobility-accessibility debate, encompass human and social contexts of movements/mobility, revealed and potential travel behaviour/pattern. Several studies (Flamm & Kaufmann, 2006; Kaufmann *et al.*, 2002 and 2004; Urry 2000; Kesserling, 2006) have discussed a potential 'hybrid' concept (Cattan, 2008:86) - *mobilities* - that is not limited to physical displacement, but also integrates the mobility potential arising from intentions of the individuals, from their strategies and negotiations in response to external factors and forces.

While explaining the concept of *mobilities,* Kaufmann *et al.* (2004:749), Kaufmann (2002: 37) identify three interdependent elements shaping mobility levels and pattern:

- *access* to mobility providing means, services, infrastructure and degrees of usability,
- *competence* to recognise and use accessible mobility means, and
- *appropriation* of a particular choice, including the option of non-action.

While the concept of *mobilities* incorporates aspects of accessibility on one hand, it goes further on the other by focusing on the "logic of an actor's actions, in particular the reasons behind the choice of tools and localisations, without being concerned with an action's maximum utility" i.e. more on actors relationship with space and less on the possibilities offered by a given territory (Flamm & Kaufmann, 2006:169).

Cresswell (2006a), Hannam *et al.* (2006) and Sager (2006) also agree and argue that mobility is closely related to potential and actual movement, where movement must occur in or refer to some kind of space entangled in networks. No matter what type of space is imagined, mobility is created by overcoming friction measured as physical distance, costs,

or other variables indicating inertia or resistance (Sager, 2006). The new approach/understanding of *mobilities* is summarised in the table 3.1.

Table 3.1: Concept of *mobilities* in brief

Components of mobility	Access	Competence	Appropriation
Meaning	Range of possible mobilities constrained by *options* and *conditions*	*Skills* and *abilities*	How agents (individuals, groups, networks, or institutions) *interpret* and *act* upon perceived or real access and skills
Indicator/ Parameter/ what to measure	Options -Range of *means* of transport/ services/ equipment in *relation* to resource exchanges (time, money, status, education, information, etc.). Conditions -*Accessibility* of the options in terms of location-specific cost, logistics and other constraints	- Physical ability; -Financial ability - Acquired skills relating to rules and regulations/ condition; - Organisational skills, e.g. planning and synchronising activities	How agents consider, deem appropriate, and select specific options Recognition of the value/outcome Also the means by which skills and decisions are evaluated
Independent variables on which (dependent) components depend	Access depends on the spatial distribution of the population and infrastructure, spatial policies, and socio-economic position	Competence is multifaceted and interdependent with access and appropriation	Shaped by needs, plans, aspirations and understandings of agents, and it relates to strategies, motives, values and habits

Source: Own elaboration based on Kaufmann *et al.,* 2004

Having conceived *mobilities* as above, paves the way for investigation at several levels: production/decision making level, providers' level and user level (Table 3.2). Range of decision making can spread from local to global levels; providers can be corporate, government agency or private sector- small business or big enterprise, individual or a group, local, nation or global. Producers' decision regarding *mobilities* affect the *access* to range and *options* of service, *skill* and *competence* require to avail the service by the users in the field. Users can also respond to the services provided either by accepting or rejecting it or by finding their own strategy based on the reality.

Table 3.2: Levels/ hierarchies of analysis of *mobilities*

Levels/Hierarchy		**Potential issues for investigation**
Production/ policy/ decision making		- Explore the links between global, national, local policies and politics affecting the decision making for/against particular mode/service - How do they influence social, spatial, modal inequality and injustice
User level	Personal	Daily activity and travel pattern of household members
	Socio-spatial	- Challenges/options to social and spatial mobility and relation in between them. - Maintenance and operation of social and spatial networks i.e. exclusion/inclusion, redefinition of distance and space, e.g. *access* to, and *appropriation* of the *means* of spatial mobility may strongly depend on household arrangements - New job-housing dynamics: multi-residentiality, multi-occupationality, or new-combination of work-habitation (more likely) among certain categories of the population (in certain household, specific household members, regions of residence, occupational groups). e.g. new dependence on cars, changes in land uses (particularly residential, commercial)and nature of shopping centres
Operators/ service providers		- How does monopoly of particular modal option affect that mode and other modes' uses and users in specific local contexts -Challenges to livelihood, shift in job/multi-occupationality or job location or new-combination of work-housing for the service providers or their household *e.g.. slum relocation/development,*

Source: Own elaboration based on Kaufmann *et al.,* 2004

3.3.5.1 Acknowledging urban mobilities

Flows and movement have become a manifestation of the late modern city (Castells, 2000). Cities are planned for the movements of its citizens, goods, information, ideas and images (Amin & Thrift, 2002; Urry, 2007). Diversified, multiple and overlapping global *mobilities* are also the characteristics of urban *mobilities* i.e. the urban layer is only another, at least lower, layer in the global *mobilities* layer. All five types of travels and movements identified by Urry, (2004, see section 3.3.4), are also common urban experiences and events. In other words, the 'criss-cross' of travel makers is not only a 'global' phenomena - as observed by Hannam and colleagues (2006) - but also exists at the urban scale. "Technological, social and cultural developments in public and private transportation, mobile communications, information storage and retrieval, surveillance systems and 'intelligent environments' are rapidly changing the nature of travel and of

communications conducted at-a-distance" (Hannam et. al. 2006:3). Although the changes are most vivid and comprehensible to common people in daily experiences in an urban scale in the developed world, urban people in the rapidly urbanising and motorising developing world are also gradually experiencing similar changes at a growing rate.

Understanding the ways in which *unjust mobilities* intersect with people, place, pace and mode is of course a complex one. Like other *mobilities*, urban *mobilities* are the outcomes of policy, politics and process of distribution of benefits and cost of *mobilities* over space, social groups, environment etc. This research is built on the premise that urban *mobilities* have different stakeholders: policy/decision maker, user/consumer and provider (agency and individual/driver). These stakeholders understand and represent *mobilities* in different ways: normative versus subjective, existing versus potential. Their priorities are also different: economic efficiency versus social sustainability, individual benefit versus collective gain, blind adherence to global trend versus informed consideration of local and community need, non-motorised (including pedestrian) mobility *versus* motorised mobility etc. Rapid changes are taking place in the supply side of the urban transportation modes, infrastructures and technology. On the other hand in the demand side demand of the users are also diversifying due to changes in socio-economic and cultural (including gendered) practices relating mobility. Plus urban/local governments are facing much political and economic challenges to match national/global requirements and local needs. So, simple (traditional) notion of mobility seeing urban mobility simply as a matter of movement in the city is less than sufficient to provide adequate attention to the different stakeholders of urban mobilities (and their experiences and forms of understanding) and dismantle their multiple interests.

In this context, the new paradigm of *mobilities* is sought to be useful. Moreover, adding the condition of justice to (urban) *mobilities* will be effective to provide a theoretical and practical platform for weighing the options, goals, objectives and requirements of different stakeholders. This research has sought to understand (*un*)*just mobilities* with respect to *distributional* and *processual* (in)justice in the urban *mobilities* of citizens. On one hand, it seeks to study the dominantly exhibited views and experience of mobilities by decision makers at the global, national and urban levels, on the other, it digs as deep as to the

household scale to identify their multidimensional patterns of *mobilities* and different effects of the same intervention in *mobilities* of citizens categorised with respect to different socio-economic characteristics.

3.3.6 Conceptualising the politics of mobility

The politics of mobility is one of the most contentious aspects of debates on urban growth (Hodge, 1990; Hanson, 1995; Dunn, 1998) and transport studies. By politics of mobility this research means "the ways in which mobilities are both productive of ... social relations and produced by them" (Cresswell, 2010:21). The social inequality embedded in the uneven distribution of mobility is a theme emphasised by Urry (2007). Hannam *et al.* (2006) depict how particular mobilities induce social inequality by differentiating abilities to master mobility systems and access to different modes of mobility.

Mobilities are also caught up in power geometries of everyday life (Massey, 1994). There are new places and technologies that enhance the mobility of some peoples and places even as they also heighten the immobility of others (Timothy, 2001; Verstraete, 2004; Wood & Graham, 2006). "Differential mobility empowerments reflect structures and hierarchies of power and position by race, gender, age and class, ranging from the local to the global" (Tesfahuney, 1998:501).

Since mobility and power are intertwined, mobility does not only tend to be unequally distributed, but it also reflects power differences between "people who move and act faster" and slower (Bauman, 2000:119). To be true, mobility conveys, on the one hand, a notion of “progress, freedom and modernity” and, on the other, issues of “restricted movement, vigilance and control” (Cresswell & Uteng, 2008:1). In contemporary cities mobility is a “highly differentiated activity” (Adey, 2006:83) where “uneven geographies of oppression” mark people's differential abilities to move (Cresswell, 2006a:742). Since "one person's speed is another person's slowness" (Cresswell, 2010:21), Albertsen and Diken, 2001 (quoted in Sager, 2006) notes that whereas access to mobility is a matter of choice for some, for others it is a question of fate. Some people are constantly forced to move on and are denied the right to settle down in a suitable place.

Henderson (2004) observes that the politics of mobility represents, in one sense, political struggles over a transport mode (motorised , non-motorised transport, walking) and the configuration of urban space and, in a broader sense, an extension of ideologies and normative values about how cities should be configured and by whom. The intense "time-space compression" of recent decades has left a "disorienting and disruptive impact" on political economy, balances of (class) power, society and culture (Harvey 1990:284). In this context, transportation has become central to shaping and reshaping urban geography and the capitalist mode of production (Harvey, 1982; Hodge, 1990). The turnover of capital and, therefore, capital accumulation itself, are closely dependent on the cost, speed and capacity of the transport system (Henderson, 2004:201). Therefore, there is a distinctive capitalist ideology of mobility (Freund & Martin, 1993, 1996) making speed and auto-mobility synonymous with economic growth and social progress (Greene & Wegener, 1997). Under the guise of increased mobility, a covert intention is to serve the interests of elites in society, business, the transport sector and even international corporations (Henderson, 2004; Ratanawaraha, n.d.; Pendakur, 2011).

Plus, the politics of mobility should also be studied in relation to democracy (Jensen 2011; Sheller, 2004, 2008; Cresswell, 2006b) which ultimately leads to "considerations over rights to mobility" (Jensen, 2011:257), including questions of mobility for whom, at what cost and conditions (Sheller, 2008).

There are thus multiple ways of understanding and "approaching the unequal distribution of mobility and subsequent opportunities" for commuting from home to job, education, shopping, leisure, social gathering (Jensen, 2011:257). In this regard, Cresswell (2010:22-26) has suggested six facets of mobility to 'differentiate people and things into hierarchies of mobility' and to examine their engagement in politics- (i) *why* does a person or thing move?, (ii) *how fast* does a person or thing move (slowness or speed by choice)?, (iii) in *what rhythm* does a person or thing move (too many one-way trips, journeys at irregular intervals, or sudden bursts of mobility etc)?, (iv) *What route* does it take?, (v) *how* does it feel? and (vi) *when and how* does it stop (by choice or force)? Now, in line with the stated facets, it is necessary to ask "who decided what types of mobility are appropriate, why

certain normative visions of mobility are favored over others, and to whom these mobilities are available" (Henderson, 2004:194).

3.4 Seeking justice in planning *mobilities*

This section elaborates the importance of justice in the professional role of the planners. Then the relevant literature is reviewed to identify principles of justice applicable in transport planning. Finally literature on the politics of mobility is discussed to reflect on how the politics affects the justice in the planning process.

3.4.1 Planners' dilemma and seeking justice in planning

The question of justice is inherent in and inseparable from a plan. In the words of Soja, (2010:xvi-ii) “any plan by any public authority, whether for public transit or health policy or for location of schools and fire stations, should be subjected to a ‘justice test’ to determine whether the distributional pattern proposed was fair and equitable for all areas and communities affected, with fairness based on the different needs of the rich and the poor as well as majority and minority populations. Similar legal tests could be applied to tax policies, electoral districting, hospital closures, school building programs, the health effects of air and water pollution, the siting of toxic facilities, practically every planning and policy decision influencing urban life”.

It should be noted that in many cities in developing countries, economic growth has not necessarily been poor-friendly; rather it has further widened the rich-poor divide (BOND, 2006). Therefore, "along with economic and environmental sustainability, achieving social sustainability is equally important in the case of developing countries" (Dave, 2009:190). “Especially in an urban context, disadvantaged individuals and groups frequently experience social exclusion centrally because they do not have access in the same way as other groups within urban space … [T]he lack of accessibility can be identified and studied in the presence of mechanisms developed specifically to control the access of people to certain places and areas. Among them the land and property market appears as a key actor” (Ureta, 2008:272). This would then, as Harvey (2006) suggested, create uneven geographical and social development by having different perceptions of gains and losses among society.

But, there is no universal formula for planners to plan, develop and manage cities; rather it requires a detailed understanding of local issues, regional strategies and urban history (Marcotullio, 2004; Sorensen *et al.*, 2004). Moreover, since the end of the last century urban transport, land use and infrastructure planning and management programmes in the global south and Asia have focused on public participation, more active role of local government and sustainability (Neumann, 1999; Barret & Usui, 2002). But it is "hard to escape the conclusion" that cities are not meeting sustainability goals, nor the verbatim application of sustainability agenda in all cities in developed and developing countries will be effective (Sorensen *et al.*, 2004:4). Plus, most authors discussing planning procedures and sustainability do not clarify what they consider to be the substantive content of sustainable spatial planning (Næss, 2001:503).

Berke and Conroy (2000:30) state that the explicit inclusion of the sustainability concept has no effect on how well plans actually promote sustainability principles. Their statement supports the frequent criticism that despite generating widespread appeal the sustainable development concept is superficial, lacks political commitment, and cannot serve as an influential basis for policy development.

Moreover, Berke and Conroy (2000) raise questions regarding the credibility of the roles played by planners. In fact, planners have a mixed image. On one hand they are seen as defenders of the poor, socio-economic equity (Harvey, 1985), proponents of holistic and harmonised growth (Marcuse, 1976), enthusiasts to value natural environment (Campbell, 1996). But planners' involvement in downtown redevelopment, planning of free way and other investment intensive infrastructure and land uses at the cost of natural destruction (Campbell 1996), belie their 'self-image' (Harvey, 1985). So, Berke and Conroy (2000) urge planners to play a critical role in promoting the dialogue between sustainability and public policy solutions to promote community sustainability. In reality planners have to serve the narrower interests of their clients, including authorities and bureaucrats (Marcuse, 1976), yet they have to make efforts to work outside those limitations (Hoffman, 1989).

In many cases, therefore, they have to work inside a dilemma: "grow the economy, distribute this growth fairly and in the process not degrade the ecosystem" (Campbell 1996:297). For example, transport planning for regional rail lines (which would encourage the suburban middle class to switch to mass transit from car) in Cleveland versus local bus line (helping the inner city poor by reducing travel and waiting time); planning for reducing pollution *versus* accessible transport (Krumholz, 1982; Davidoff, 1982; Susskind, 1982; Kaufman, 1982).

Campbell (1996) summarises the planners' dilemma through a triangle (Figure 3.1) of economy, environment and equity: *property conflict* between economic growth and equity generates competing claims of and uses of space; *resource conflict*' arises on the question of prioritising the use of resources for business *versus* community, the regulation for preservation for current versus future demands; finally, most elusive *development conflict* results from the tension between social equity and environmental preservation. Now, the most challenging conundrum for sustainable development is how to increase social equity and protect the environment simultaneously, or how to ensure that those at the bottom of society find greater economic opportunity in the regime of environmental protection. "Planners define themselves, implicitly, by where they stand on the triangle. The elusive ideal of sustainable development leads one to the centre " (Campbell, 1996:298)

So far these conflicts are matters of *distribution* and *process*, and significantly involve planners along with other actors. But if another layer is added asking why one (group, sector, activity etc) is prioritised or considered over the other, the question of motivation of and politics in (planning and other) decisions comes in. It also makes the roles of others (political and strategic decision makers, users, beneficiaries) apart from planners subject to examination and also makes the question of justice not merely limited to matter of equitable (re)distribution, but also points towards procedural fairness - transparent, and unbiased (or positively discriminated). Thus in an age of sustainability based public policy (Berke & Conroy, 2000) and planning (Beatley & Manning, 1998) agenda and political vocabulary and administrative vocabulary (Næss,2001), planners have to consider justice as a defining agenda in their practice.

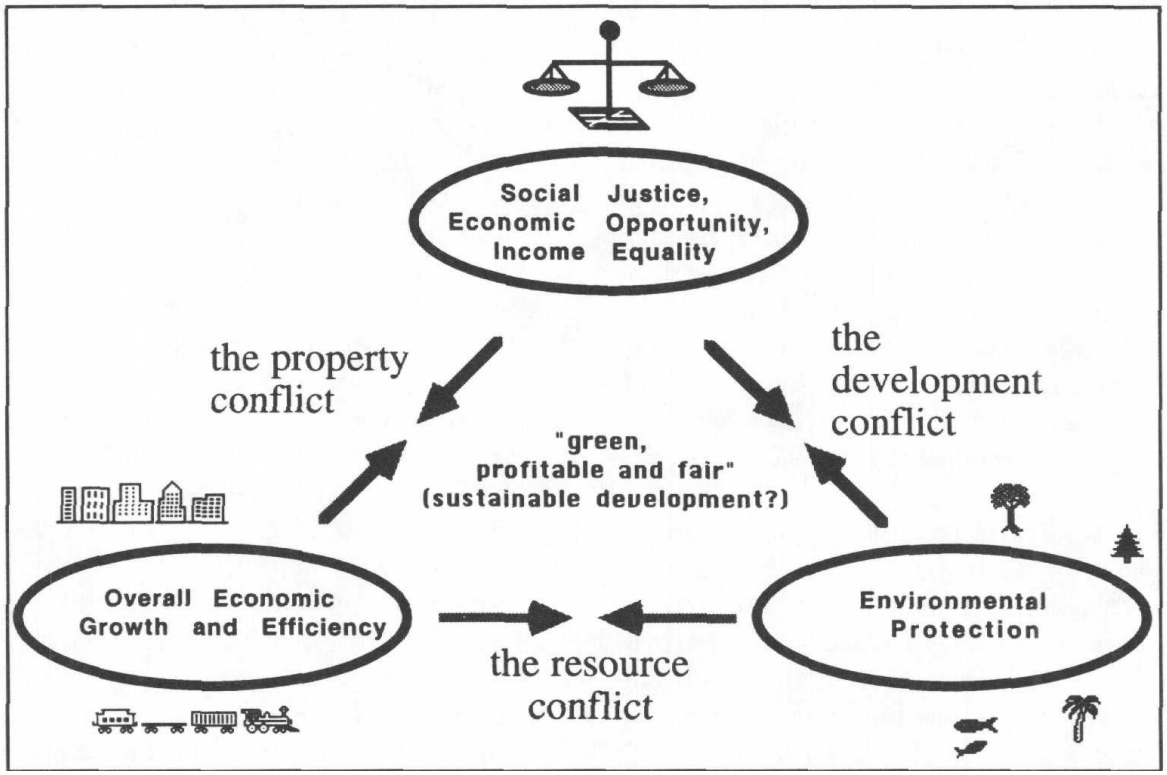

Figure 3.1: The triangle of conflicting goals for planning, and the three associated conflicts.
Source: Campbell, 1996:298

In fact, Sorensen *et al.* (2004) observes that if "society's path to equity is perceived ... as ... progress from barbarism to justice" (*ibid*:303) and if sustainability is redefined from merely "evoking a misty-eyed vision of a peaceful eco-topia" (*ibid*:297), and incorporated into a broader understanding of political conflicts in modern society, it could become a powerful and useful organising principles for planning. Otherwise, the "powerful momentum of modern industrial and preindustrial society" will not only be ignored, but it might also carry an "anti-urban sentiment... [neglecting] the centrality and plight of megacities" (*ibid*:302). For this research, in the case of decisions regarding mobilities the same is true. There is an imperative to understand the issues of planning *mobilities* from the context of *justice*, and *politics* as well, along with the agendum of (environmental) sustainability.

3.4.2 Application of principles of justice in transport planning

In a transport context, social justice refers to the fairness in the physical distribution of public goods, accessibility for people, affordability of all types of services and distribution

of other gains (such as increases in land and property prices) (Beyazit, 2011). Transport infrastructure investments and consequent land use development are "likely to cause some groups to be better off, but also some to be worse off, where the incidence of gains and losses over different interest groups will generally vary over space" (Verhoef, *et. al.* 1997:31). Harvey (1973) in *Social Justice and the City,* one of the early contributions in this regard, mentioned differential effects of transport facilities in reaching other services and more importantly the job market i.e. land uses. But he did not go further than discussing their distributive effects in terms of income. By the mid-1990s, a growing interest in the relationship between social justice and transport reappeared; studies included issues as gender, ethnicity, age, class and disability (Banister, 1994; Church *et. al.*, 2000; Sánchez *et. al*., 2003; Rajé *et. al.*, 2004), and indicators such as income (Cervero & Landis, 1997; Leck *et al*., 2008), inaccessibility/travel poverty (Lucas *et al*., 2001; Lucas, 2005), social participation (Putnam, 2000), distributional effect of transport development/infrastructure (Forkenbrock *et al*., 1999; Bureau & Glachant, 2011; Lucas *et al.* 2009). Trinder *et al.* (1991) and Hay and Trinder (1991) have summarised the application of justice principles to transport at a local level (Table 3.3).

Trinder *et al.* (1991:35-36) further identified four broad areas of transport issues which may generate discussion as long as social justice is concerned: (i) *how* decisions are made (process issues), (ii) *who gets* what (provision issues), (iii) *who pays* for transport (burden of costs issues), and (iv) *who suffers* from the use of transport (externalities issues). They also seek to understand these four areas with respect to the ten key principles (as presented in Table 3.3) of justice in table 3.4. In terms of process, procedural fairness and liberty rights have been identified to be most important criteria. In contrast, in terms of provision, a wide range of justice principles including expectations, *formal equality* and *substantive equality*, *need as demand, basic need*, and *wider need* and *claim rights* are used as criteria. *Formal equality* and *substantive equality* might be used to argue for burden of costs for matters relating to externalities. The principle of *liberty rights* might also be used to press the case for compensation for individuals affected by development.

Table 3.3. Principles of justice, and potential transport applications at a local level

	Principle	**Transport application**
1	Procedural fairness	Exclusion of certain interested groups, individuals from the policy process
2	Expectations	Unexpected/sudden or major increase in rail fares, unexpected siting of a new road Long-established bus services are withdrawn (which may be unexpected)
3	Formal equality or Horizontal equity.	Making provision so that -all ratepayers have access to facilities supported through local taxation -similar levels of bus service in all areas of a city Regarding burden of cost, requiring -beneficiaries of the provision of public transport (for example, owners of city-centre shops) contribute to its financing. -road pricing or -car users to pay the real and hidden costs of their use of the transport infrastructure Addressing externalities by -compensating individuals affected by road schemes
4	Substantive equality	Provision to -secure equal access to facilities or equal use -have higher levels of service in poorer or public-transport-dependent areas of a city Regarding burden of cost -differential pricing of bus fares, with suburban users paying higher rates per journey than inner-city users Addressing externalities by -examining all road schemes, analysing their relative impact on inner-city and suburban dwellers
5	Need as demand	Provisioning -unsubsidised transport services -subsidy-free public transport services
6	Basic need	Provisioning -access to "subsistence, maintenance and recreational facilities"* -subsidised transport services to rural areas
7	Wider need	Provisioning free public transport
8	Liberty rights	Provisioning/accepting -procedural rights to intervene in policy process, -procedural right of local people to be consulted on transport issues affecting them Regarding burden of cost, -compensation for individuals affected by development
9	Claim rights	Provisioning/accepting rights to concessionary fares
10	Deserts	(Uncertain, possibly) arranging concessionary fares for the elderly.

Source: Based on Trinder, *et al,*. 1991; Hay & Trinder, 1991; * Koutsopolous, 1980a; 1980b

Table 3.4. The relation of principles of equity, fairness, and justice to transport issues

Principle	Process	Provision	Burden of costs	Externalities
Procedural fairness	*X*	?	?	?
Expectations	O	*x*	O	O
Substantive/Formal fairness	?	*x*	*X*	*x*
Substantive equality	?	*x*	*X*	*x*
Deserts	?	?	?	?
Need as demand	?	*x*	O	?
Basic needs	?	*x*	O	?
Wider needs	?	*x*	O	?
Liberty Rights	*X*	?	?	*X*
Claim rights	?	*x*	?	?

Note: ?- no clear relation; O- possible relation; *x*- clear relation.
Source: Trinder *et al.,* 1991:35

3.4.3 The politics of mobility in urban land use and transport planning

Cities are constituted by flows of people, vehicles, information and organisations of infrastructures for human, technological, and informational mobility are crucial to the articulation of 'networked urbanism' (Graham & Marvin, 2001:30-33). In the last couple of decades "an intense phase of time-space compression ... had a disorienting and disruptive impact upon political-economic practices, the balance of class power, as well as upon cultural and social life" (Harvey, 1990:284). Studies on travel behaviour (Ewing *et al.*., 1994; Frank & Pivo, 1994; Cervero & Gorham, 1995, Cervero et. al., 2009; Handy, 1996; 1,000 Friends of Oregon, 1997) emphasise that organisations of the built environment including distribution and location of transport infrastructures and their interaction with other land uses is central to mobility.

Thus "[t]he politics of mobility is not just about contesting how people or goods move through space; [it]... should also be understood in the context of how space is configured and organised to facilitate movement, and this in turn is determined by political power" (Henderson, 2009:70). At a city-region or supra-urban scale, studies (Richardson, 2006; Richardson & Jensen, 2008; Jensen & Richardson, 2004; Jensen & Richardson, 2007) on the planning of transport infrastructure in Europe show how the government rationalities and decisions inherent in urban/regional policymaking affect European mobilities: more cosmopolitan networks of higher speed and lower friction modern options for urban

citizens; denial of the less affordable citizens from access to high speed trains, airport etc. which essentially require higher affordability.

On the other hand at city scale, while putting light on the impact of sidewalks, crosswalks and compact, mixed-urban land uses on 'walking as a form of mobility' Henderson (2004:195) shows that "if the street is a six-lane, high-speed traffic road with no safe crosswalk, pedestrian mobility is significantly impeded… [I]t reveals that some forms of mobility are incongruent... [and] car-based mobility is theoretically privileged". However, the ability to have good mobility by car requires not just wide, fast roads, but also plentiful and convenient parking, and low-density, dispersed development so that car-based mobility is not obstructed or congested (Gordon & Richardson, 1997a, 1997b). Such ideas and covert politics of mobility "are not innocent but crucially linked to particular categorisation of people (subjectivities)" (Jensen, 2011:261-2): car owner or not, pedestrian or motorist. Rose (1999), Huxley (2002), Jensen (2006) have also shown how the urban subjects are historically produced to behave in certain form (that is taken for granted) as they move around urban space.

Again, matter is not only "*How* space is configured …or [which] mode [is] used to overcome spatial distance … [but] also… the degree of spatial and temporal distance across space" (Henderson, 2004:195). With the example of a person driving five miles in five minutes to buy groceries and another walking a few blocks for the same within five minutes, Henderson (2004) shows how different kinds of mobility with radically different distances and modes of transport, with differing infrastructure requirements and spatial configurations connect places in space and time in very discrete ways. He also insists that answer to the question 'which person in the above example has the *better* mobility' depends on "factors beyond simple transportation studies and extends into normative values and ideologies, or a systematic set of fundamental beliefs and principles that assert what mobility should be and for whom" (Henderson, 2004:195). The resulting spatial organisations and mobility regime, called "autospace" (Freund & Martin, 1993), incongruent with widespread transit, pedestrian and bicycling spaces has more than a physical impact on cities - an ideological impact effectively naturalised the car and creates

an ambivalence toward problems of cars among much of the middle class (Sheller & Urry, 2000).

Cresswell (2008), furthermore, identifies the politics of mobility in access to movement during the crisis period. Using the case study of Hurricane Katrina, he examines the response of the city authorities in New Orleans; demonstrates how the politics of mobility, i.e. deciding whom to move and when, how and where, had severe, at times fatal, costs for the under-privileged population of New Orleans, while the wealthier citizens were able to escape the disaster (Cresswell, 2008).

Thus, mobility is an ingredient in the basic social and political logic with an active part in the constitution of the city (Kesselring, 2001:183–184, in Jensen, 2011:262). Here comes the question of government intervention; what can meaningfully be seen as (policy) problems, as causes and effects (Jensen, 2011:258) and solution as well which are "inextricably entangled with governmental practices" (Huxley, 2007:189). Again the politics also exploit the sufferings of the people to justify their plans, decisions and further investments. A particular form of knowledge and techniques is enmeshed with the daily practices, perception, imaginaries and experience of the mobile or immobile urban citizens (Jensen, 2011:257-9) to legitimise costly transport infrastructure (Jensen, 2006). Moreover, “while the problem is usually described in terms of land-use planning, solutions are rarely within the powers of local authority land-use planners to effect. Many planning decisions are taken out of their hands by the private sector and other more powerful public sector agencies ... [and] do not include transport and accessibility as essential criteria in their location assessments. As such, planners are regularly forced to bow to the pressures of other more compelling considerations, such as private profit, job creation and value for money” (Lucas, 2005:802).

So, mobility contains embedded social relations just as Lefebvre (1991) theorised that the character and nature of produced space reflects the dominant modes of production and social relations within a given society. Accordingly, this is very valid to ask “who decide[s] what types of mobility are appropriate, why certain normative visions of mobility are favoured over others, and to whom these mobilities are available”

(Henderson, 2004:195). Harvey (1982, 1996), Logan and Molotch (1987) have analyzed how the contest for urban space is an extension of struggles over differing values and ideologies; their findings can also be extended to the *politics* of mobility. Since transportation is a major component of this production of space (Harvey, 1982) and central to any understanding of the political economy of capitalism because it provides the conditions for capital accumulation and provides for the social reproduction of labour (Holdge, 1990). Transportation minimises the spatial impedance to the mobility of capital, people and products allowing for smoother spatial integration and facilitating the "annihilation of space by time" (Harvey, 1983:219). While writing on Atlanta, USA Henderson (2004:202-3) asserts that the obsession with the automobile in the name of 'progress' was rooted in the underlying logic of capitalism and its relationship to "hard mobility" defined as a form of movement centred on high-speed, high occupancy, energy and land intensive mobile and fixed infrastructure that decreases circulation times of capital; only at the cost of removal of "soft" mobilities - pedestrian and transit spaces.

3.5 Conclusion

Reviewing literature extensively this chapter has built platform for a *just mobilities* framework developed in the next chapter. A large volume of literature that seeks to address the issue of justice and/or social justice for the last five decades has been reviewed. It has been found that issue of *politics* is drawing an increasing attention along with conventional discussion on *distribution* and *process* in the scholarship of justice. Similarly literature on mobility has expanded discussion from *existing* mobility to incorporate *potential* mobility with respect to *access*, *competence* and *appropriation.* Contemporary mobility literature also acknowledges the context of the underlying *process* and *politics* resulting in differential *distribution* of access to mobility by various people, in different time and place for numerous reasons and motivations. The multiplicity and complexity of mobility is sought to be caught as a new paradigm called *mobilities* in recent literature on transport, urban planning, sociology, etc. This chapter has also shed light on how the academic knowledge on mobility and justice is in a position to initiate mutually beneficial dialogue under a framework called *just mobilities*.

Chapter 4

Towards a *just mobilities* framework

4.1 Introduction

Having discussed the theories of *justice* and *mobilities* in the previous chapter, a framework for *just mobilities* is developed here. At first a brief discussion sheds light on the need for seeking *just mobilities.* It is argued that development of the framework is in line with the chronological changes in mobility and transport studies. Then a framework is developed which is based on the principles of *justice* and aspects of *mobilities* as discussed in the previous (third) chapter.

4.2 Seeking *just mobilities*

This section seeks to demonstrate and justify the requirement of the concept of *just mobilities*' to complement the ongoing reorientation in transport and sociological studies, fill the shortcomings in studies/policies on sustainable transport/mobility, transport related exclusion, and the politics of mobility .

4.2.1 Humanising transport studies - socio-political approach to transport planning

Transport is usually seen as a technical area dealt by engineering, construction and management; sociology often sees it as only a tool not an end itself, with little effect on shaping people's values (Town, 1981). Vasconcellous (2001:36) further finds "engineers resistance" to social and political approaches in the technical, "neutral" and "corporate" sectors of transport. However, a new (socio-political) approach is proposed- resulting in the emergence of a new area of sociological research (Healey, 1977; Yago, 1983; De Boer, 1986) - not just to "complement the traditional one but replace it, without minimising the importance of competent technical treatment in specific phases of analytical process" (Vasconcellos, 2001:33).

Healey (1977), quoted in Vasconcellos (2001), distinguishes between 'sociology of transport' and 'sociology in transport' to differentiate the quantitative analysis of transport related social issues from a more profound analysis of causes and effects on both users

and non-users. Based on Healey (1977) and Rimmer (1978), Vasconcellos (2001:34) identified several phases: (i) description and prediction, (ii) rejection and (iii) redirection. The first phase, contemporary to the prime time of neoclassical market economics, was characterised by the role of highway engineers devoted to accommodate automobiles in the growing cities using four-step forecasting models; planners' had a limited role to satisfy the revealed community aspirations; no practical need to use the social and political approaches. In the second (*rejection*) phase the most important assumption - supposed neutrality and technicality of methodology - was challenged followed by a lack of confidence in market supply and demand; sociology and political science entered for the first time in the field of transport; cost-benefit analysis (CBA) included social and environmental impacts; political participation in the decision-making process was formalised. "However transport planning continued to be consensus-seeking, broadly market based and with a narrow, aggregate and one-way view of [CBA] that neglected contributions by and interference from the users" (Vasconcellos, 2001:34). These are sufficient reasons for identifying a 'trivialisations of sociology', with its adoption for transport planning being only a 'survival tool' (Healey, 1977 quoted in Vasconcellos, 2001). The final phase, *redirection, is* characterised by a rethinking of transport planning; sociology, for the first time, is used in analysing social structure and social change; focus shifted on the analysis of the decision-making process, rather than the decisions themselves; divergence and conflicts in needs, interests and values, inside and between groups and classes had been acknowledged and accepted; distributive and equity effects of policies along with economic efficiency are investigated. Thus the long-held separation between engineering and sociology was no longer defensible, and planning became politically mature (Healey, 1977, quoted in Vasconcellos, 2001).

De Boer (1986) makes further chronological detailing of transport sociology. While during the 1930s (in the US) and 1950s (in Europe) the major concern was traffic and road safety, later in the 1960s, the major problem appeared to be traffic congestion. In the 1970s further reassessment at micro and macro levels was done. Firstly, at micro level transport planners became aware of the disconnection between manifest demand (identified by origin-destination surveys) and actual needs of travel, and the time and social limits of individual trips. Many studies showed that actual need could have changed from manifest

demand if prevailing had condition changed. Again demand for travel is not unlimited as individuals are constrained by both personal and family limits, along with environmental and transport constraints. Finally, all the models were challenged on the basis of their supposed ability to represent actual behaviour and forecast the future (Kanafani, 1983; Atkins, 1986; Dimitrou, 1990).

At the macro level politicisation of the transport issue questioned the impact of automobile, nature and scope of public transport policies. Initially, Buchanan (1963) and subsequent studies, quoted in Vasconcellos (2001:35), conservatively conceived the conflict as an accessibility versus environment issue and proposed only the reorganisations of space i.e. proposed no structural change. Then a more political and sociological wave systematically questioned the privileges enjoyed by the automobile use and users i.e. ultimately questioned capitalist society. Lastly, a new critical approach emerged with an increasing concern for equity issues in transport, and the reassessment of the prevailing development of auto oriented cities at first in developed and then in developing countries.

In fact, Vasconcellos (2001:37-8) proposes a new window of sociological study- 'sociology of circulation', assuming three central issues for transport and traffic policies: distribution of access in space; use of the city by different social classes and groups; and conditions of equity, safety, comfort, efficiency, environment and cost. "Sociological approach would therefore allow for the analysis of why space is divided in the prevailing way, why some people may have access to certain transport modes, and how externalities are generated and experienced by [users]... what would happen to demand and modal split if different conditions prevailed" (Vasconcellos, 2001:39). Putting the example of urban transport quality and traffic accidents, he summarises the differences between the prevailing and proposed approach to transport studies (Table 4.1).

Table 4.1: Differences between the prevailing and proposed approaches to transport studies

Approach	**Typical factors in the analysis**	
	Examples of transport quality	Examples of traffic accidents
Technical	Vehicle traffic conditions (volume, speed, density)	Number of accidents by type
Social	-Aforesaid aspects and -Quantity of people involved	-Aforesaid aspects and -Characteristics of people involved (age, gender)
Socio-logical	- Aforesaid aspects and -Analysis in the light of their socio-economic characteristics and their access to different transport means	-Aforesaid aspects and -Analysis in the light of their social and economic characteristics, their behaviour and level of education

Sources: Vasconcellos, 2001:39

A sociological approach would therefore make ways for the analysis of distribution, process and associated politics in mobility studies in this research. Further, in congruence to the evolution discussed, this research would seek to apply a *just mobilities* framework, developed in this chapter.

4.2.2 Towards complementing the conceptualisation of sustainability in mobility and transport

Usually discussion on sustainability sheds light on justice (social justice) along with environmental sustainability and economic efficiency. But equal focus on all the three aspects is an overdue. Fujita (2009:378-9) even dissents that "renewed the definition of sustainability", after the 1992 Rio Conference on Environment and Development, and the 2002 World Summit on Sustainable Development in Johannesburg, sustainability "did not address justice and equality adequately". Therefore, Agyeman *et al.* (2003a, 2003b) have attempted to establish the concept of *just sustainability* by bringing equity into environmental justice and sustainability. Agyeman *et al.* (2003a) conclude that *just sustainability* implies that more sustainable societies will only emerge when those societies begin to demonstrate greater levels of material, social, and political equality.

In such a context, there is scope to appreciate justice more in the studies dealing with sustainability in mobility or transport. In the following discussion the shortcomings in conceptualising sustainable transport and sustainable mobility paradigms are identified.

A. Complete aspects of justice remain unaddressed

There is a large volume of literature on sustainable transport and land use (EFTE 1994; Banister 1997, 2000, 2005; Banister *et al.* 1997; Possum 1998) including land-use and transport interaction (Cervero 2003, 2002, 2001; Cervero & Murakami, 2010; Cervero & Radisch, 1996; Cervero & Kockleman, 1997; Frank, 2000)[47] sustainable mobility (Banister & Streen 1999; Banister 2005, 2008), green/sustainable transport policy and strategy or review of projects (EFTE, 1994; Janic, 2006; Banister, 2005, CEC, 1999, Litman 2003, OECD 2001). A review of definitions[48] shows that sustainable transport system prioritises economic and environmental sustainability; commits to social sustainability only with respect to socio-economic welfare without depleting natural resources, destroying the environment and harming human health (Janic, 2006: 84).

Martens (2012) has listed several transport literature talking about *distributive justice* i.e. other aspects of *justice*, namely *process* and *politics* (see section 3.2.1) are left unaddressed. Moreover, Martens (2012) questions the contribution further observing that the literature has focused on precisely the composite parts such as road and gasoline taxes (Altshuler, 1979); transit investments and subsidies (Cervero 1981; Hodge 1988; Garrett and Taylor 1999); infrastructure investments (Lucy 1988; Brocker *et al.* 2010); road user charges (Smeed 1964; Richardson 1974; Ecola and Light 2009); and transit service (Murray and Davis 2001; Rucker 1984; Wu and Hine 2003) and distribution of transport-related burdens (e.g., Feitelson 2002; Forkenbrock and Schweitzer 1999; Schweitzer and Valenzuela 2004).

Announcement of 'the sustainable mobility paradigm' (Banister, 2008) is a major step forward. It equally focuses on sustainable mobility and urban sustainability in transport:

[47] see Ewing and Cervero (2010, 2001) for reviews of studies on transport and land use

[48] Some definitions are as follows:

Sustainable transportation is that, which does not endanger public health or ecosystems and that meets needs for access consistent with (a) use of renewable resources that are below their rates of regeneration, and (b) use of non-renewable resources below the rates of development of renewable substitutes. (Wiederkehr, 2004:14)

A sustainable transport system i) allows basic access and development needs of individuals, companies and society to be met safely in a manner consistent with human and ecosystem health and promotes equity between successive generations; ii) is affordable, operates fairly and efficiently, offers a choice of transport mode and supports a competitive economy as well as balanced regional development; and iii) limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes while minimising the impacts of the use of land and generation of noise. (CEC, 1999)

A sustainable transport system is one in which fuel consumption, vehicle emissions, safety, congestion, and social and economic access are of such levels that they can be sustained into the indefinite future without causing great or irreparable harm to future generation of people throughout the world. (Richardson, 1999:27)

"Sustainable mobility provides an alternative paradigm within which to investigate the complexity of cities, and to strengthen the links between land use and transport" (Banister, 2008:73). However, compared to the way travel, land use issues are investigated, the social dimension is less addressed[49]. Quoting and complying with Marshall (2001), Banister (2008:75) calls for modal shift to NMT; management based, social dimension and people and NMT focused transport planning. These propositions are very much in line with this research. But, propositions to initiate the process are more technology and behaviour focused, with less, if any, reference to politics: "The sustainable mobility paradigm is moving towards an objective-based planning system that is trying to implement a range of policy interventions, but with an important additional element, namely the support of all stakeholders. Underlying this discussion is the need to understand behaviour, and to explore the means by which cooperation and support can be obtained, so that real change can take place. The notion of personal utility must be placed in the wider context of social welfare" (Banister (2008:79).

However, "given the current conditions of our cities, where a significant part of the population can spend hours only to reach the daily destinations, it is very difficult to separate the two goals [quality of life and sustainable mobility]. The consequence of this is a growing public support to the concept of sustainable mobility or at least to measures that lead to the concept" (Miranda & da Silva, 2012:142). So, sustainable mobility has been in focus for a long list of literature and practical projects. Miranda and da Silva (2012) have developed an index for urban sustainable mobility ('I_SUM') and applied it in Curitiba, Brazil. Despite having a theme namely 'social inclusion' and relevant indicator 'vertical equity', the 'I_SUM' is yet to appreciate other principles of justice (*process* and *politics*), stated in section 3.2.1. On the other hand, although literature has started to acknowledge the aspects of justice, projects on sustainable mobility is lagging behind[50].

[49] Banister (2000:115-116) summarised the following issues to be burning from transport perspective for its conformity to sustainable urban development - congestion, increased air pollution, traffic noise, road safety, degradation of urban landscape, space occupation (particularly by auto-oriented infrastructure/facilities), use of fossil fuel (and global warming), dispersed land use development, development pressure in car-accessible locations, globalisation and new pattern (and intensity of) freight transport. Among the targets to achieve sustainability, identified by Banister (2000), include reducing need for travel, compact development, reduce dependence of car and shift to public transport and bike etc. requiring environmentally sensitive local and national/global political intervention.

[50] Janic (2006) reviewed out of 170 EU project for sustainable mobility under four themes . His findings in each theme is as follows: (i) Integrated policy aspects of sustainable mobility (discussing issues relating to Understanding the market Visioning the future, Tools and method, Transport management, Pricing and financing, Mobility management, New technologies and transport concepts)-72 projects, (ii) Economic aspects of sustainable mobility (Land-use and macroeconomic effects, Regional linking,

Therefore, it can be argued that consideration for a *processual* component of mobility planning and the question of uneven *distribution* of power and *politics* while implementing that plan are yet to be done. (To be true, under the contemporary sustainability theme these aspects are not essentially required to be addressed). In fact, the crux of the problem is that neither the mainstream environmental movement nor the disciplines and literature following it has sufficiently addressed the fact that social inequality and imbalances in social power are at the heart of environmental degradation, resource depletion, pollution, and even overpopulation (Futita, 2009). But, the environmental crisis can simply not be solved without social justice (Bullard, 1993b:23). Just as environment is not "colour-blind" (Ageyman & Evans, 1999:3) nor transport and *mobilities* are power-blind. So, appreciating entire aspects of justice in the *just mobilities* framework developed latter in this chapter, is sought to contribute toward fulfilment of the felt need in the 'sustainable mobility paradigm' and other transport studies.

B. Mobility is understood partially if not misunderstood

Challenging the notion transport is a derived demand, 'Sustainable mobility paradigm', considers travel as a "valued activity" (Banister, 2008:74) . This research also supports the argument. However, Banister and other proponents of sustainable mobility also argue for reduced need for travel, which reflects that they are only meaning car based mobility (in cities in the developed countries). Plus Banister's (2008:75) interest in accessibility, rather than mobility (*ibid*:75), also suggests that a narrow meaning of mobility has been used. But this research, drawing on Kaufman *et al.* (2002, 2004) and others, has defined mobility with respect to *existing* and *potential* mobility in conjunction with *access* (to *options* and *range* of mobility i.e. incorporating accessibility), *competence* and *appropriation* of mobility.

Completion of the Single Market, EU competitiveness, employment and innovations, External trade Pricing, financing and external costs)-42 projects, (iii) Social aspects of sustainable mobility (Physical accessibility, Pricing acceptance and equity, Support for public, transport European cohesion, Working conditions) -33 projects and (iv) Environmental aspects of sustainable mobility (Understanding environmental impacts, Mitigating the environmental impacts of transport, Development of environmentally friendly forms of transport)-20 projects. So it is evident that under theme of sustainable mobility there comes almost all aspect of sustainability although projects relating economic, financial, technological aspects dominate, at least in terms of number.

Studies on sustainable transport, like Kennedy *et al.* (2005), also emphasise much on land use and accessibility[51]; neither mobility nor justice has received similar attention. On the other hand, studies on 'just accessibility', like Lucas (2005), urge for equity and justice in transport planning; but their key focus is also accessibility not mobility[52]. These studies overlook the social function of mobility (as argued by Kenyon *et al*. 2002:212). and potential mobility (Kaufman *et al*. 2002, 2004 and others) and hence conceived mobility only partially.

Similarly, the idea of 'Street for all' (users and functions)[53] to bring about a sustainable, equitable, accessible and socially just transport and land use planning system" Khayesi *et al.* (2010:107) comes close to both *distributive* and *processual* (and political) components of justice (argued in this research) but are silent regarding *potential mobilities*.

C. Bias towards developed country urbanisations, less viability in the developing world

A careful review of the literature on sustainability on transport reveals bias towards urbanisations (and associated development) in developed countries. Whereas cities in developing countries are already compact featuring lower average trip length, low car ownership, high proportion of NMT (including pedestrian) use, higher incidence of poverty (featuring less mobility of the poor and those not owning cars compared to rest in the same city and society), etc. call for reduced trip and length, modal shift seem to be alien. Important to note, while arguing for reduced mobility, Banister (2008:75) "in its pure form ... means that a trip is no longer made, as it has either been replaced by a non-travel activity or it has been substituted through technology, for example Internet shopping". Thus the proposition of sustainable urban mobility loses its appeal as a policy agenda in developing countries; particularly in a period when "urban mobility is

[51] Kennedy *et al.* (2005) argued that sustainable transportation requires suitable establishment of four pillars: effective governance of land use and transportation; fair, efficient, stable funding; strategic infrastructure investments; and attention to neighbourhood design. But to them mobility is different from accessibility and it does not take into account social function of mobility.

[52] "The key aims for accessibility planning are to ensure that local decision-makers have improved information on the areas where accessibility is poorest and the barriers to accessibility from the perspective of the people who are living there. It is also designed to create a more transparent, integrated and equitable process for transport and land-use decisions. Transport planners are being encouraged to 'think out of the box' and work more collaboratively with their partner agencies, so that a wider range of solutions to accessibility problems can be identified and greater value for money achieved through their combined and synchronised efforts".

[53] Khayesi *et al.* (2010) referred to success of BRT in Bogota and Curitiba, development of the long network of cycling and pedestrian paths in Bogota and non-motorized transport intervention in Nairobi, Kenya as success stories. They also underscore the need for pro "streets for all" institutions and individuals to be radically innovative at political, planning, research and participation fronts, drawing on competence, resources, (*ibid*:122).

increasingly becoming one of the planning and development issues" (Sietchiping, 2012:183)

Writing on Mauritius, Enoch (2003:297) clearly states: "while Mauritius is clearly a developing country, the future policy options currently being considered by the Government are perhaps better suited to a western developed nation than to a less capital intensive country". Whitelegg (1997:12) elaborates more dramatically: "The developing world meets many of the criteria for sustainable transport and sustainable development. Most transport is still accomplished by human and animal power, car ownership levels are low, fossil fuel dependence is low, and in large cities population densities are such that accessibility indices register values that would make many cities in North America and Europe very jealous. Most people in most cities in developing countries live very close to most things they need to do and produce very small amounts of greenhouse gases".

Although many studies on developing country report on the "exclusionary planning process not consulting the people" (Ahmed *et al*, 2008:126)[54] and bias in decision making[55] resulting mobility problems, to the best of this author's knowledge, there is very little literature conceptualising sustainable transport and mobility in a developing country context. These literature again adds little to the sustainability concept already as biased towards the developed world[56]. Sustainable transport development potential in developing

[54] With most of India's urban poor cannot afford any private motorized transport at all, and many cannot even afford the low fares on public transport (Mohan, 2001; Whitelegg & Williams, 2000; Badami *et al*., 2004), Pucher *et al.* (2005:186) also adds the Indian middle class a victim of poor transport in cities. However, Pucher *et al.* (2005:193) doubts that "the already extreme inequity in mobility and accessibility in Indian society will probably get even worse. Not only will the poor benefit least from increasing motorisations, but they will bear a disproportionate share of the social and environmental costs of that motorisations". Overlooking the most sustainable and affordable modes (walking and biking) in urban transportation priorities is said to have serious (in)equity impacts in urban Beijing and Karachi. (Ahmed *et al.*, 2008:136).

[55] Researchers are also aware of bias in government policies and of decision-makers."Politicians often lack knowledge regarding the dynamics of urban transport. They lack social commitment to act in the interest of the less privileged, and they lack political will to confront the privileged urban elite" Lim (1997:7). Pucher *et al* (2005),Vasconcellos (2001), Tiwari, (2001) Low and Banerjee-Guha, (2003), Badami *et al.* (2004) echo the same in case of Indian cities: while the poor are one fourth of India's population and suffer the most from severe and worsening transport problems in cities, government policies generally focus on serving the needs of an elite minority. For example, a disproportionate share of government funds is spent facilitating the ownership and use of private cars, while the needs of mostly low income pedestrians and cyclists are ignored, and public transport does not get adequate and prioritised funding.

[56] To Sarkar and Tagore (2011:1350) sustainable transport in Indian cities context refers to any means of transport with low impact on the environment, and includes walking and cycling, transit-oriented development, green vehicles, car sharing and building or protecting urban transport systems that are fuel-efficient, space-saving and promote healthy lifestyles. Singh (2005) underscores the importance of encouraging the "green" modes, such as bicycles, cycle rickshaws, and pedestrians, in an urban transport strategy, but not clear about the outline or framework of a sustainable transport.
While writing on Pakistani cities, Imran & Low (2003: 34-35) developed sustainable transport guiding principles comprised of aspects like economic viability, accessibility for all, ecological sustainability, social equity, health and safety, integrated planning, land and resource use, education and public participation, consensus building through networking, individual and community responsibility.

countries is suffering an irreversible decline due to "depredations of increased vehicle manufacturing capacity, vehicle ownership and use and pollution"- Calcutta is an obvious example (Whitelegg, 1997:13).

On the other hand, Lim (1997:7) observes: "Lack of mobility should be considered as a handicap in a similar way as deprivation in other forms of social amenities and services. ... Even with car-owning households, many members of the family are still immobile i.e. the young, the aged, and those with ill-health as well as the adult non-drivers. In developing countries, the increased use of private cars can only provide added mobility to the urban rich at the expense of the already less mobile urban poor".

Agreeing with the typical aspects of sustainable transport, Bae and Suthiranart (2003:37-38), add "another view of sustainable transportation, particularly relevant in Bangkok, to maintain and promote the capacity for people to move around the core city at tolerable speeds ... Sustainable transportation in this context implies attention to both equity (more accessibility for the poor) and efficiency (ensuring that deficiencies in the transportation system do not undermine urban productivity). It also avoids a focus on one or two modes by implying a more holistic, multi-modal strategy". Interestingly, unlike any discussion on sustainability, this view has little reference to environment.

4.2.3 Complementing other transport and mobility related studies

Studies of transport related social exclusion (see section 3.3.2) deal a lot on the *distributive* and *processual* components of justice. Social exclusion centres upon the processes of unequal access to participation in society (Duffy, 1998) or is said to have a focus upon resource and power relationships between individuals, groups and the state (Dibben, 2001; Judge, 1995; Room, 1995). However, the concept of and literature on transport related exclusion is yet to explicitly acknowledge the broader concept of mobility and elaborately consider the politics of mobility. The same is true for the

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Verma, *et. al.*, (2011) have identified three components of sustainable transport: energy management (reducing dependence on fossil fuel), Capacity management (encouraging public transport, cycling and walking) and environmental management (minimising environmental impacts). They observed that sustainable transport is also important for developing countries from the perspective of climate change, i.e. to improve carbon footprint/ ecological footprint (EF) of transportation; but expressed mobility in terms of speed, travel times, delays, etc. along the important corridors of the city.

literature on transport disadvantaged (Yigitcanlar *et al.*, 2010; Ureta, 2008; Litman 2003; Murray & Davis, 2001; Hunt, *et al.* 2005).

Moreover, a long list of studies on *politics* of mobility has already been mentioned previously (see sections 3.3.6 and 3.4.3). But they make scant reference to the broader aspects of mobility.

4.3 Towards a *just mobilities* framework

A *just mobilities* framework considers equity (horizontal and substantial), fairness (*procedural*) and *justice* on *needs*, *expectations* and *rights* different stakeholders of *mobilities* namely producer (decision/policy maker), service provider (collective or individual, institution/agency or self-employed driver/mover) and consumer (user) of options and facilities of *mobilities*. It considers the process of knowledge making and of producing/delivering *mobilities* options and facilities by different agencies, authorities. It inspects socio-spatial distribution of *needs* (*basic needs, demand* and *wider needs*), *rights* (*liberty* and *claim rights*) of and *deserts* (reward and punishment according to merit) to *mobilities* of different groups (opting to move or not) represented by income/livelihood, housing, car ownership, access or distance to power or decision makers of different kinds other factors. It identifies the nature of effects and externalities of *mobilities* on different groups and stakeholders (table 4.2). All the processes, activities, effects and externalities are expected to be discussed in different hierarchies- global, national and local (figure 4.1). Lastly, the contexts and blueprint of politics (for personal, professional, organisational or collective profit and/or gains in mobility, business, bureaucracy, technocracy, governance etc.) in the distribution and process (of making and) of *mobilities* are also disclosed in the framework developed.

In the previous chapter different principles of justice (section 3.2.1) and their application in planning transport and *mobilities* (section 3.4.2), and aspects of a broader concept of mobility, namely *mobilities*, were discussed. Based on those discussions a set of guiding questions to organise a *just mobilities* framework has been presented in the 2nd column of table 4.2. It should be mentioned that each question refers to more than one aspect of

Table 4.2: Set of queries guiding the *just mobilities* framework

Principles of justice	**Questions relating to justice and m*obilities***	**Clue**	**Issues for *mobilities***
I. Distribution (formal/ hori-zontal & substantive equity) Where Which Who	1. What are the current and potential destinations where the users can go and cannot go under the existing and newly imposed/ prescribed transport (mobility) decisions?	I, A, B	**A.** Options -**range of means** of transport/ services/equipment in **relation to resource** exchanges (time, money, status, education, information, etc.).
	2. In the given condition (in terms of time, money, status, education, information, physical ability, ridership skill and values, family structure, official privilege, etc) what modal options do the user have? 3. Is there any unexpected/sudden changes in fare, modal option (particularly relating long established services) or level of service for any user/ user group?	I,IV, A, C, D, E	**B**. Conditions -**accessibility** of the options in terms of location-specific cost, logistics and other constraints **Access**
II. Process (Procedural fairness) How	4. Who are the beneficiaries and victims, in the given condition ? i.e. - What are the new benefits & burdens? Are those equally distributed? - Are the victims compensated and beneficiaries charged accordingly? -And/or does the decision or process of decision making ensure equal distribution of aforesaid aspects ? -Does the decisions meet the basic mobility needs in terms of accessing certain locations? -Does the decision consider merit/need/value of particular user group? *(This question can also be applicable and extended to places/land uses/ environmental aspects)*	I, II, A , B, C, E, F	**C**. Physical **ability**
III. Politics & motivation (of distribution & process) Why	5. Who has to adjust their mobility pattern or mode chain/options?	I, F,G	**D**. Acquired **skills** relating to rules and regulations/ condition;
	6. Which modes are benefitted and victimised?	I, A,G	**E**. organisational skills, e.g. planning and synchronising activities **Competence**
	7. How are the decisions arrived at? What methods and data are applied? How are the need, expectation of the users studied? Are the decision maker/authority capable enough to make the decision?	II,III, E, G,H	**F**. How agents consider, deem appropriate, and select specific options
IV. Expectation **V**. Need as demand, basic and wider need **VI**. Deserts **VII**. Liberty rights	8. Why particular group/mode/value/needs are considered? Whose needs/expectation/values are prioritized? 9. What is the motivation of particular distribution of benefits and burdens? Is it distributed according to merit?	I,III, VI, VII A,G	**G**. Recognition Of the value/outcome
	10. What are the other externalities generated and Who are the other beneficiaries/victims of them? Are the victims compensated or beneficiaries charged?	I,III, VI, E,G	**H.** also the means by which skills and decisions are evaluated **Appropriation**

Source: Own elaboration

justice and *mobilities.* The 3rd column, named 'Clue', relates the questions to respective principles of *justice* (by roman numbers) and issues of *mobilities* (by letters in capital case). The extreme left (i.e. 1st) and right (i.e. 4th) columns in the table remind the principles of justice and issues for *mobilities*. The 1st column also indicates the key words to search/ask for particular aspects of justice and those key words are found (explicitly or implicitly) in the relevant questions. For example, *distributional* aspects of justice are sought to be discovered by key words like 'where', 'who' and 'which'; whereas *processual* (procedural) and *politics* (motivational) aspects are enquired by key words like 'how' and 'why' respectively.

Fig 4.1 is a schematic presentation of the framework developed. The framework can be understood, at least, in three levels: local, national and global. In all levels aspects of distribution, process and politics can be traced. Whereas issues of distribution and politics are more prominent at the local level, process and politics related issues are widespread at the global level. In all levels, there are stakeholders/actors like users/consumers or mobility providing services, service providers, and policy/decision-makers affecting the service.

4.4 Conclusion

This research argues that *just mobilities* is an essential lens for understanding *mobilities*, including sustainable mobility. It follows on from Lucas' (2005:802) exhortation "think out of the box" combining mobility and accessibility, a broader dimension of *mobilities*, distributional and procedural aspects of transport and mobility with dynamics of politics. This research is convinced that a broader definition of mobility along with its amalgamation with theory of justice will contribute towards greater maturity in the already changing transport and mobility studies. Although transport and mobility are used interchangeably, this study envisages mobility in a bigger picture that includes social, political, economic, environmental and technical implications and of which transport is only an organising component. *Just mobilities* seems useful to fill the knowledge gap in the literature on sustainable transport/mobility, *just city* and land use-transport integration. Hence., it is complementary to the sustainability paradigm. In fact, sustainable mobility itself "requires clear and innovative

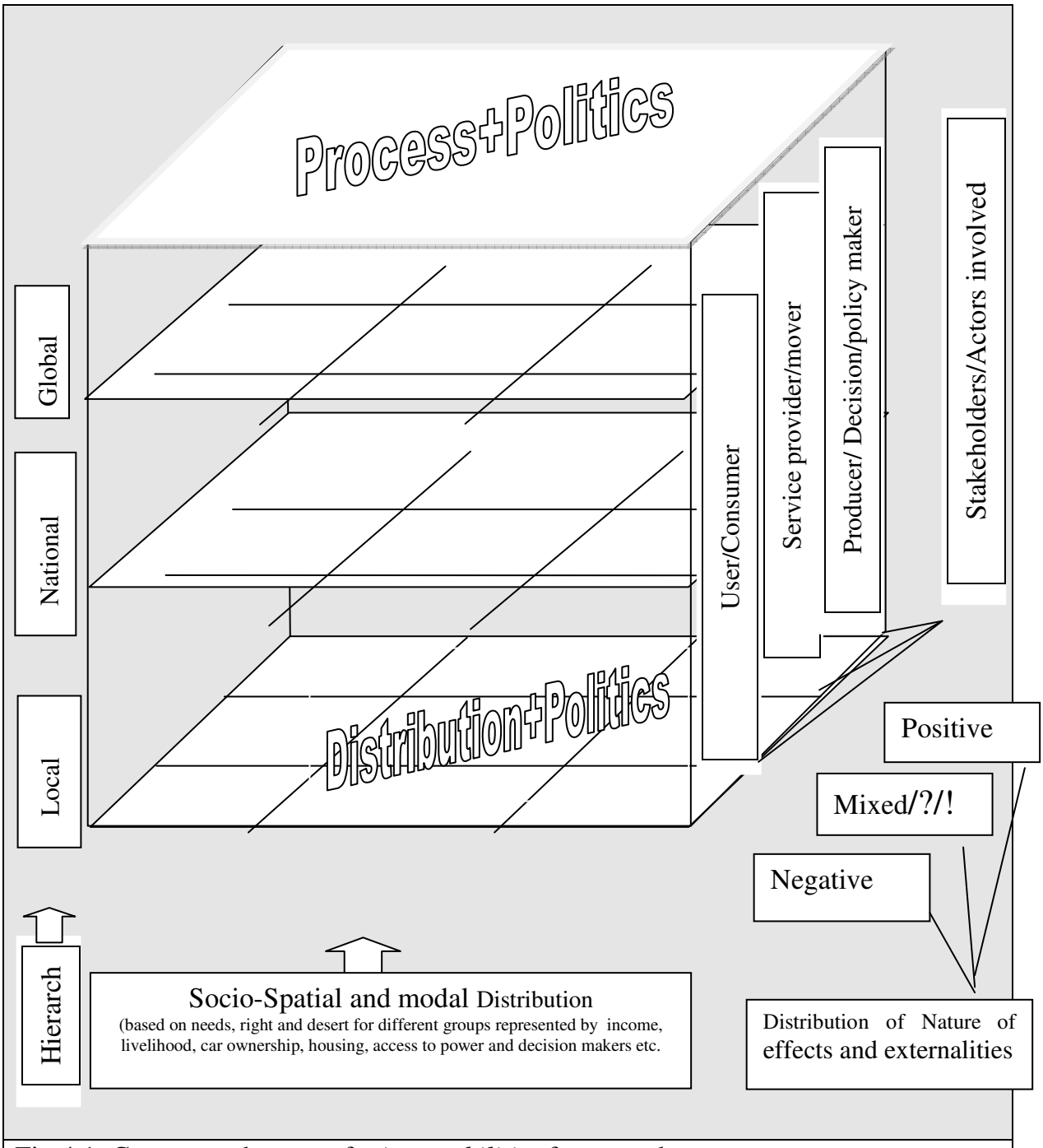


Fig.4.1: Context and scope of a *just mobilities* framework

Source: Own elaboration

thinking about city futures in terms of the reality (what is already there), desirability (what we would like to see), and the role that transport can (and should) play in achieving sustainable cities" (Banister, 2008:73).

Chapter 5

Distributive effects of rickshaw bans and restrictions on *mobilities* in Dhaka

5.1 Introduction

This chapter starts with the hypothesis that rickshaw bans or partial restrictions in transport corridors in Dhaka have changed the *conditions* and *options* for road use and thus have affected different aspects of mobility. As discussed in chapter three, this research conceives mobility as *mobilities* defined in terms of *existing* and *potential* mobility of the citizens with respect to their *access* (to the range of options and conditions), *competence* (*skills* and *abilities*- physical, financial, social and others, to recognise 'manifest demand' and actual needs' of movement, and use modes) and *appropriation* (of existing and potential movement, particular choices- forced or not). This assumption is examined and reported in this chapter based on the field level data collected from three study areas in Dhaka, namely Shyamoli, Shukrabad and Bijoynogar, through a questionnaire survey, open ended interviews and focus group discussion (FGD). At first the condition of rickshaw bans/restrictions, in terms of experience of the respondents and other household members, is explored and afterwards the effects and responses are described.

5.2 Presence of rickshaw bans and restrictions during movement for different activities

This study has categorised the activities by the household members into two categories: *time-bound (routined)* and *time-flexible (other)*. In brief, *time-bound (routined)* activities are defined as those activities which are done regularly (4/5 days a week) at the same time (e.g. going for work, school etc.), while *time-flexible (other)* activities are those activities which are also done often but not exactly at the same time (e.g. going for shopping or medical services, visiting relatives etc.) (see section 1.8 and section 2.7 for further details). During survey around 90% of the household members reported that there are rickshaw banned corridors or restricted intersections on their way to *time-bound (routined)* activities (Appendix D, Table D.1); the figure was 83% for *time-flexible (other)* activities done by the household members. A similar pattern is observed in three different study areas with new ban

area Bijoynogar having the highest restricted activities – almost 93% for *time-bound (routined)* and 88% for *time-flexible (other)* activities (Appendix D, Table D.2).

Figure 5.1 shows experience of all household members (in all three study areas) of rickshaw bans/restrictions i.e. presence of bans/restriction on their way to perform their main *time-bound (routined)* and main *time-flexible (other)* activities. It shows that only in case of one *time-bound (routined) activity,* namely 'other', households members face no rickshaw ban or restriction. But this category of *time-bound (routined)* activity was only 0.2% of all main *time-bound (routined)* activities. In case of main *time-flexible (other)* activities, two types of activities, namely 'carrying children to tuition' and 'availing services - post office/bank/barber etc', faced no rickshaw bans/restrictions. But each of these two activities shared only around 1% of all main *time-flexible (other)* activities[57]. On the whole, as table 5.1 shows, main *time-bound (routined)* activities faced 50%-100% bans/restrictions and main *time-flexible (other)* activities face 30%-100% bans/restrictions. Important to note, among the main *time-bound (routined)* activities going to 'work', 'school/study', 'carrying children to school', 'daily/kitchen shopping' faced nearly 80% or more bans/restrictions while riding on rickshaws; in the total responses of experiences of bans/restrictions on the way to *time-bound (routined)* activities respective share of the four activities were 41.60%, 37.4%, 8.4% and 4.9% i.e. 92.3% of the total responses relating to bans/restriction on the way to main *time-bound (routined)* activities (Appendix D, Table D.3). On the other hand, while performing top three main *time-flexible (other)* activities, namely 'daily/kitchen shopping', 'non-daily shopping' and 'visiting family, relatives and friends', cumulatively faced 60% of the bans/restrictions in *time-flexible (other)* activities. Thus 87% of all main *time-bound (routined)* activities (constituting three top activities- going to 'work', 'school/study', 'carrying children to school') (see section 2.7 for distribution of main activities *time-bound (routined)* and *time-flexible (other)* activities) faced 80% of all reported bans/restrictions in *time-bound (routined)* activities and 72% of all main

[57] Confusion may arise finding same activities on both sides (time-bound and time-flexible) of the figure5.1. In fact, during field survey same list of activities, prepared after reconnaissance survey, was given to the respondents. They choose their *time-bound (regular) and time-flexible (other) activities* from the list. Therefore, in case of one household member one activity, say 'carrying children to tuition' was *time-bound (regular)* activity, but for another household member, who might escort children in an emergency, it was a *time-flexible (other)* activity. See Appendix B, tables B.15 and B.16 for the household members' distribution based on time-bound (routined) and *time-flexible (other)* activities

time-flexible (other) activities (constituting top three activities in this category) (see section 2.7) faced 80% of all reported bans/restrictions in those activities. It reflects much spread out effects of the bans/restrictions on the activities of the people in the study areas[58].

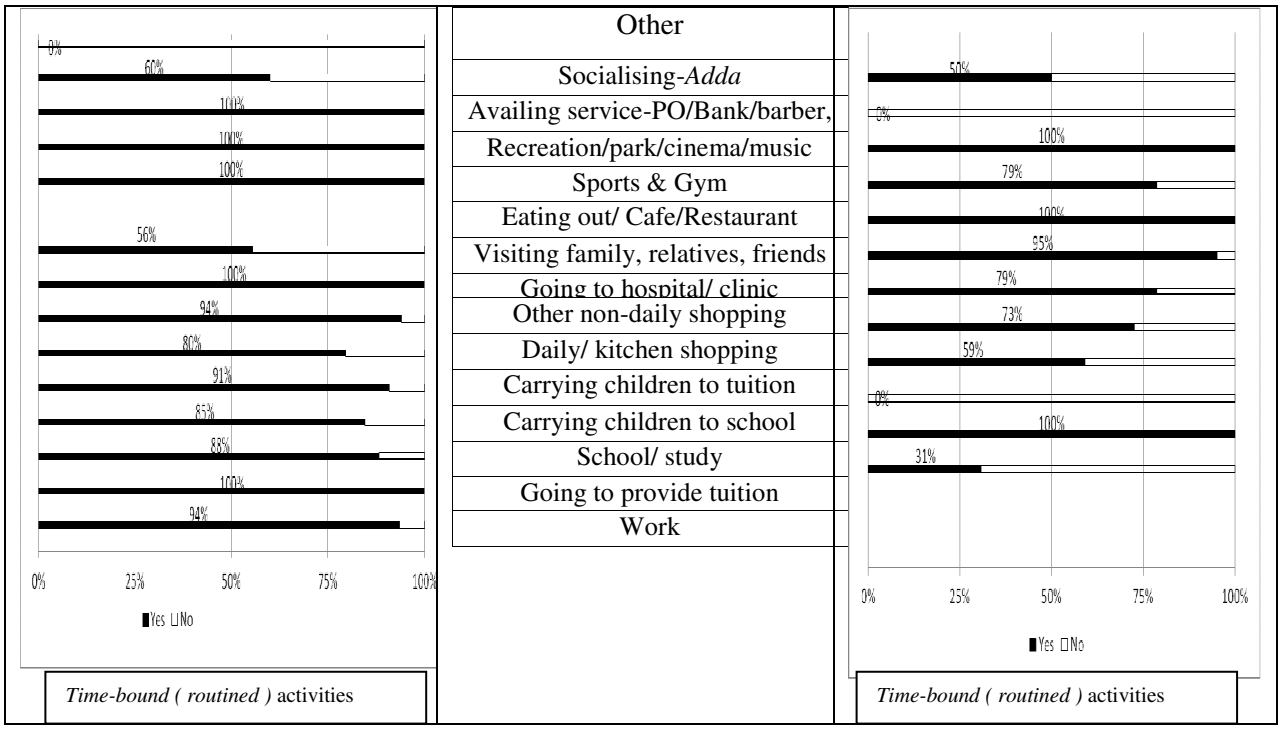


Figure 5.1: Distribution of household members in three study areas by activity and presence of rickshaw bans/ restrictions on the way of activities
Source: Appendix D, Table D.3

In case of *time-bound (routined)* activities both male and female household members faced almost same frequencies of rickshaw bans/restrictions- 90% and 89% respectively (Appendix D, Table D.4). But in case of *time-flexible (other)* activities, female household members faced more restrictions/bans on their way to activity locations than male members- 89% versus 77%

[58] It can be said that residents in the rickshaw banned/restricted areas will naturally face bans/restrictions. Hence it may not be the representative picture for Dhaka city. But that is not the case in this survey. In Shyamoli and Shukrabad rickshaws are not allowed to ply on or cross the major road- Mirpur road, and in Bijoynogar two intersection are restricted for rickshaws. But they are available at the intersection of the major and minor roads or 250 metres inside the minor road (in case of one minor road in Shukrabad). So, residents requiring to use rickshaw walk up to the rickshaw-point and then ride on it. But this experience of ban/restriction is not counted during the field survey. Rather once they have started their rickshaw journey, then if they face ban/restriction, that is reported as experience of bans/restriction by the respondents and their household members. After facing bans rides or their rickshaws might have to divert to other road/route or finish the journey their and cover the rest distance by walking or other mode or even by rickshaw after crossing the banned/ restricted part. This break of journey, might also occur in case of those riders who are crossing the study areas. But the research have not surveyed these through passengers, but only the households in the study areas to reveal the effects of bans/restrictions on the different activities of a households. See also section 2.4.

(Appendix D, Table D.4). It means that for the females bans/restriction related problems, discussed later in section 5.3, were round the clock and more stressful experiences. Moreover, activities mostly done by female household members such as 'carrying children to school', 'doing daily and non-daily shopping', 'visiting family, relatives, friends' (See figure 2.9) faced ban/restriction in more than 50% cases (Figure 5.1). During the focus group discussions (FGDs) with guardians in the school premises it had been reveled that in the socio-economic context of Dhaka women from the non-car owning households were more comfortable with rickshaws than other public transport modes as they usually did not ensure the privacy and comfort they look for. For the same reason, it can be argued that for the female respondents and female household members rickshaw was a more favoured choice and hence female respondents faced and consequently reported more rickshaw bans/restrictions during their activities. Other studies also support these findings[59]. However, after the initial bans and restrictions several new buses were introduced which helped a section of citizens, mainly males to change their modal choice from rickshaw to bus, said the development activist, interviewed during the field work. But they were inadequate compared to the required number. So, women usually avoided the bus service for short and medium distance trips and time-flexible (other) or any emergency activities; they either took rickshaws or CNGs, said the female guardians in Focus Group discussions.

81% of the children (below 15 years of age), i.e. household members in the mobility dependent group, faced rickshaw bans/restrictions on the way to *time-bound (regular)* activities (Appendix D, Table D.5). 85% of the total people over 60 years, who were also mobility dependent in most cases, faced the bans/restrictions on rickshaw movement on their

[59] DITS (1993) found that reasons for using rickshaws were mainly convenience, door-to-door service, absence of alternatives, cultural factors and privacy/segregation. It also reported that in 1993 women used rickshaws for 70% of all trips, bus for only 7% of all trips; for men and children the figures were 62% and 15% respectively (*ibid*:6). Zohir (2003) also found the same reasons, plus flexibility in using and availing rickshaws. Women did not travel in crowded bus because of lack of privacy, unfriendly behaviour/service by the bus driver/helper, difficulty in riding a running bus etc., the study added. Zohir *et al*. (2008:39), referring to other studies, report that from 1993-97 use of rickshaws has increased to 35.3% (of all trips) from 21% for women, while for men the increase was comparatively low- from 15% to 24% . Again, from 1997 to 2008, the use of rickshaw had more for men than women; from 35.3% to 30% for women and from 24% to 15% for men. In Mirpur road corridor overall use of rickshaws declined from 36.5% to 23.3%. But alternative transport modes were not gender-sensitive; so routes on which housewives travelled to escort their school going children, rickshaws still remained dominant mode for 41% of housewives.

ways to *time-bound (regular)* activities. In case of *time-flexible (other)* activities for the two groups respective figures were 81% and 90% (Appendix D, Table D.5)

5.3 General problems in *mobilities*- linkage with rickshaw bans and restriction

During the survey respondents identified different problems (shown in Appendix D, Figure D.1) associated with their journey towards various activities - both *time-bound* and *time flexible*. Tussles to get on the mode, poor road condition, break of journey, long waiting times and problems in negotiating travel fares were reported as the five major problems. Although the problems were identified in general with regard to the transport and mobility experience in Dhaka, rickshaw bans/restrictions could also be their direct or indirect causes. Since rickshaws were withdrawn or diverted, a shortage for modes was created in the road in absence of adequate number of substitute modes and routes. After the first initial ban in 2002, new buses rolled in and new bus routes were introduced along with taxi cab service. As these measures failed to meet the demand, tussle with co-passengers was a "real horror", said one participant in a focus group discussion (FGD). Again, soon many taxi-cabs and buses, introduced in 2002, were out of order or were taken off from the road, informed one DTCB official during interview. The problem aggravated as the drivers of taxi cabs and three wheelers or *rickshaw-wallas* started seeking "unreasonable, sometimes astonishing, fare while metered taxi or CNG drivers refused to go as per metres [to calculate fare by distance and waiting time]", exclaimed several participants in FGDs. The problems became more serious if someone had to carry luggage and/or to accompany an elderly or children somewhere. If any destination could be reached by rickshaw using another road, which would be a local road and hence in most cases was "ill maintained", jerking made the journey really a difficult and uncomfortable experience; in many cases rickshaw journeys were not continuous, i.e. door to door; the break of journey was a must, recalled several FGD participants.

Based on the insight gained during field work, interviews and FGDs (Appendix E, FGDs), the linkage of mobility and transport related problems (identified by the respondents of the

questionnaire survey) with rickshaw bans/restrictions are illustrated by the author in the table 5.1 below. The table also shows that many of the mobility and transport related problems are both directly and indirectly linked to rickshaw bans/restrictions.

Table 5.1: Nature of linkage of the problems with rickshaw bans/restrictions

	Direct	**Indirect**	**Not related**
Problems in finding mode	√		
Too much waiting time	√	√	
Tussle to get on mode	√	√	
Problems in negotiating fare	√	√	
Increased fare		√	
Uncomfortable inside*			√
Road in bad condition/ jerking		√	
Problem in carrying luggage		√	
Break of journey	√		
No door-to-door service	√		
Additional difficulties while accompanying children/elderly	√		

*Mainly related to public bus journeys; refers to quality of seats and seating arrangement, air-flow and personal comfort (as against crowding) inside the bus

Source: Own elaboration based on interviews and Focus group discussions during field survey, 2012

A sex-wise distribution of the problems (Appendix D, Table D.6) reveals that of all problems reported 20% were from the females, which was exactly equal to the share of the female respondents (20%) among all respondents. Among the problems reported by them, 'additional difficulties in accompanying children/elderly' (100% of this problem were reported by females), 'break of journey' (77% of this problem were reported by females), 'problems in negotiating fares' (53% of this problem were reported by females), 'no door-to-door service' (43% of this problem were reported by females) are on the top. Table 5.1 shows that these problems are directly linked to rickshaw bans/restrictions.

This research has found (Appendix D, Table D.7) that car-owners reported problems mainly with respect to road condition. So, it is indicative that personalised car users[60] were facing different problems compared to non-owners. However, it does not mean that they were not at all adversely affected; non-car-using members of a car-owning household faced similar problems like 'problems in finding modes', 'too much waiting time', 'problems in negotiating fare', 'no door-to-door service' etc. (Appendix E, FGDs).

When the problems are distributed according to main *time-bound (routined)* activities (Appendix D, Table C.8), most (82%) of the respondents reported problems during 'going for work', which also shared highest (41.30%) of all main *time-bound (regular)* activities (Figure 2.8). In fact, Appendix D (Table D.8) and Appendix E (FGDs) show that activities like going to 'work' and going to 'school/study' faced each type of problems reported by respondents. Again, problems like 'too much waiting time', 'problems in negotiating fare', 'break of journey', 'no door-door service', which were directly linked to rickshaw bans/restrictions, affect all or most of the activities.

5.4 Changes in rickshaw related journey experiences

Since the movement of rickshaws were banned/restricted, two types of changes occurred in rickshaw related journey experiences - one was the direct effect on the experiences of rickshaw journeys, the other was the secondary effect on the user of rickshaws.

5.4.1 Direct effects on the rickshaw journey experiences

Despite bans/restrictions, many households and their members had to use rickshaws for different activities. The respondents identified such changes in their journey experiences as follows: three-quarters of the respondents reported that on their way to different activities, for which previously rickshaws could be used uninterruptedly, breaks of journey increased; 71% stated increases in the financial cost of mobility; more than half experienced increase in daily

[60] Personalised car users refer to the private car owners or those officials who are provided with private cars to be used by them and household members.

travel distance for different activities (as in most cases short and better conditioned roads are off limit for this mode) (Appendix D, Table D.9).

An area-wise picture of the incidence in the breaks of journey shows that this was highest in Shyamoli (81%), least in Bijoynogar (68%) (Appendix D, Table D.10). Bijoynogar was comparatively better served by public buses and also had highest car ownership among the study areas. So use of rickshaws was lower here among the three study areas. Again 'contact arrangement'[61] for rickshaws was also highest here (Appendix D, Table D.10). The incidence of break of journey for residents here was low, but not for those through passengers who used to cross the area by rickshaw. Shyamoli was less served by public bus compared to Shukrabad and Bijoynogar, and had lowest car-ownership. So, the short and medium length journeys were much affected due to bans/restrictions here in general in Shyamoli.

5.4.2 Indirect effects on rickshaw users

The problematic journey experiences resulting from bans/restrictions on rickshaws caused some other secondary effects. This affected children's school attendance, a *time-bound (routined)* activity; 62% of the respondents said that overcrowding and discomfort in public buses increased as a consequence of inadequacy and inefficiency of public transport; 37% of respondents thought that school-goers in their households became more reluctant to go to school due to difficulties they, along with their guardians, faced in the morning while going to schools (Appendix D, Table D.9). Similarly, as specialised transportation service for medical emergencies was really inadequate in Dhaka; people themselves had no option but to carry ill/diseased persons to hospitals/clinics - for the non-car-owners rickshaws were always a common and readily available mode. But, 55% of respondents noted that even carrying ill/diseased members to hospitals/clinics became more difficult (Appendix D, Table D.9) after bans/restriction.

[61] As finding a rickshaw becomes difficult for a particular activity, mostly during morning or evening hours, some households have made a monthly contact agreement with a rickshaw-walla, CNG driver or school van drivers to carry a households member, in most cases school going children or office going female member, to the destination via rickshaw allowed roads. It saves the time, effort and hassle to find a mode during the particular activity. Moreover, the contacted driver or rickshaw-walla takes more care of the passenger in a poor road condition, accepts changes in schedule and also provides extra service to other members of the household at reasonable fare.

5.5 Response strategies of households and respondents to rickshaw bans and restrictions

As rickshaw bans/restrictions changed *access* (*options* for mode, and *conditions* of *mobilities*) respondents and their households developed their own strategies i.e. *appropriation*, based on their *competence* -skill, affordability, health condition and other related aspects. The following discussion is based on the questionnaire survey, FGD and interviews.

5.5.1. Forced choice of options for mobilities

The bans/restrictions changed the modal use of household members and respondents; some reported that they were even forced to change their modes. 12% of the respondents reported that their households had been forced to buy a private car; 52% of the respondents experienced forced bus ridership; 66% of the respondents experienced forced walking (Appendix D, Table D.11). Households who could not afford a car - either for financial difficulty or for other reasons like lack of parking space, having no house of their own (i.e. currently a tenant), but facing enormous difficulties in finding a suitable mode at reasonable fares to reach their destinations, opted for 'contact arrangement' (see footnote 61) with *rickshaw-walla*, drivers of CNG, school van etc. Respondents reported that 18% of the households made 'contact arrangement' for rickshaws, 14% for CNGs and 13% for school vans (Appendix D, Table D.11).

If forced car ownership is investigated area-wise (Appendix D, Table D.12), two old ban areas show opposite features; Shyamoli which had a comparatively higher share of low and medium income households than Shukrabad (in fact, than Bijoynogar as well) (Appendix B, Table B.4) revealed low level of forced car-ownership; Shukrabad, which has nearly 50% more high income households than Shyamoli (Appendix B, Table B.4), had the highest response in this regard. Different share of forced car ownership in two low car-owning areas-Shukrabad and Shyamoli, could be explained by the difference in affordability. For households in Bijoynogar, which already had higher car-ownership than the other two areas (Figure 2.5), forced car ownership was in between the other two study areas.

In case of forced 'contact arrangement' for rickshaws, interestingly, households in high income areas showed higher response and vice versa (Appendix D, Table D.12). It can be explained by three reasons: (i) forced rickshaw arrangement was a short term response; in the longer term affected people used to buy cars or change routes or nature of activities (see section 5.5.2) or any other option would have developed. Among the study areas Bijoynogar was the latest ban area; residents in Shyamoli were experiencing rickshaw ban earlier than Shukrabad. So it was found that residents in Shukrabad and Shyamoli adjusted with bans/restrictions through other responses; but those in Bijoynogar had to opt for 'contact arrangement' for rickshaws (ii) Another important issue is the availability of rickshaws in different local roads. As the bans/restrictions (in and around the study areas) turned several parts of Bijoynogar and Shukrabad into rickshaw free islands, residents in those areas had to opt for 'contact arrangement' for rickshaws particularly for children (to carry them to schools) and for women office goers, (iii) However if there were other options like school vans for school children, forced 'contact arrangements' for rickshaws decreased. It happened in the case of Shyamoli, where in the absence of rickshaws, many (21% - highest among the study areas) households had been forced to contact privately run school vans; however as Bijoynogar was a very recent ban area, here the school van service was less developed and hence least households (7%) could arrange it (Appendix D, Table D.12) and consequently the share of forced contact-rickshaw arrangement was highest.

5.5.2 Changes in activities and pattern of mobilities

When respondents were asked if the withdrawal of rickshaws had prevented them from using this mode for a particular purpose[62], 17% answered affirmatively (Appendix D, Table D.11). However, it was found that the households and members who could not afford to make changes in their mode or journey/route, changed - either avoid or changed the frequency and timing - less essential and non-routined activities (which could be termed as potential ones). 16% of respondents reported that the decision prevented them or their family members from

[62] For example, someone may usually prefer using only rickshaws to go to or come from the kitchen market or shopping centre or to visit relatives nearby. The activity can also be performed using CNG three wheelers which are far less available than rickshaws in Dhaka and costlier. But as rickshaws are unavailable now they are forced to opt for other modes and use of rickshaw for the purpose is completely prevented.'

visiting friends and relatives; 17% of the respondents or their fellow members had been prevented from participating into classes, educational programmes or training events requiring regular attendance (Appendix D, Table D.11). Many (37%) of the respondents reported that as they had to spend more time to find a mode or get into public transport, particularly while going for work, their effective working hours reduced[63] (Appendix D, Table D.11). Again, a similar number of respondents (33%) expressed frustration as more time was spent on the road, their non-working hours reduced affecting activities associated with family, friends and relatives (Appendix D, Table D.11). Finally, the perception regarding independent *mobilities* of him/herself and members of the households showed that 57.5% of respondents thought that they or their household members' independence at movement was affected due to the withdrawal of rickshaws (Appendix D, Table D.11).

5.5.3. Mixed perceptions regarding changes in speed and congestion

As regards the definition of *mobilities* by Kaufman *et al.* (2002, 2004) and other scholars, *appropriation* of *mobilities* also means interpretation and understanding on the mobility situation along with responses to the prevailing mobility conditions. The survey has revealed that many respondents do not agree with the announced potential advantages of the rickshaw bans/restrictions, such as increased speed of bus and other motorised modes, reduction in traffic jam etc.

In fact, one of the most stated reasons in contemporary transport planning and engineering intervention in cities is increased speed, also expressed in the guise of the term 'increased mobility'. No exception also was there while making rickshaws off limit in many roads; increased speed and reducing congestion were two main objectives of the project(s). But road users found it hard to reach such conclusion. 61% of respondents said that the decision had increased congestion in the rickshaw permitted roads, as rickshaws from banned roads were also diverted there (Appendix D, Table D.13). Regarding congestion in major roads - many of

[63] It has been revealed during open-ended discussion during household survey that as people doing work/job are always in uncertainty regarding availing a suitable mode(s) that will give them a comfortable journey after the busy office hours, some of them leave offices earlier than they should. Plus, many times they come lately in the office due to unavailability of transport, demanding of 'unreasonable' fare by drivers or rickshaw-wallas when a mode if found; crowd in the public transport. Thus effecting working/office time is reduced and even the authority has to remain 'indulging' as it also know the reality.

which were rickshaw free then - slightly more than half (50.3%) of respondents reported no major change (Appendix D, Table D.13). Similarly although the majority (52.5%) of respondents stated that speed of the motorised traffic increased, nearly half (46.4%) reported no change (Appendix D, Table D.13). These finding were similar to those in other studies, like DSM Consultants (2006), HDRC (2004), carried out to evaluate execution of the NMT withdrawal plan in Dhaka.

5.6 Perception and choice for rickshaws and other modes

This section reports on the perception of respondents on the importance or usability of rickshaws and other widely used modes in Dhaka for short (less than 2 km), medium (2-5 km) and long (5km and above) trips. It also discloses the respondents' choice of different modes in four different real or hypothetical conditions/situations: (i) current (when rickshaw is/was banned/restricted in several roads/intersections), (ii) rickshaw allowed in whole Dhaka, (iii) 1st condition i.e. current plus good public transport and (iv) lastly, 2nd condition plus good public transportation.

Figure 5.2 depicts the mean rating of different modes for various trips by the respondents. When respondents were asked to rate (in a scale of 5, 1 for minimum and 5 for maximum) the importance or usability of different modes for three different types of trips (in terms of distance) the mean rating of rickshaws were highest for short trips (below 2 km). In the case of medium length trips (2-5 km) although the mean rating for rickshaw was third highest (3.56) it was not far from the highest mean rating (3.77) for car and almost the same for the second highest mean rating (3.58) for CNG three wheelers. For long distance trips (above 5 km), rickshaws were rated quite low, which was natural; public bus received highest rating followed by car. JICA (2010:3-15, 3-17) mentions that more than 50% of rickshaw trips are for a distance covering 1-3 km and average trip distance by rickshaws is 1.8 km. In such a condition bans or restrictions on rickshaws did not satisfy the choice of a large number of respondents who used it mainly for medium and short trips.

Figure 5.3 shows that 40% of the high income households (earning Tk. 50000 or more per month) rated the mode very highly important/usable for short trips; more than half of the respondents from medium income group (earning Tk 20000-49999 per month) rated it so. But very high rating was given by only 17% of the low income households (earning less than Tk 20000 per month) perhaps due to their less use of rickshaws for daily activities; 50%of the group rated it 'moderate'.

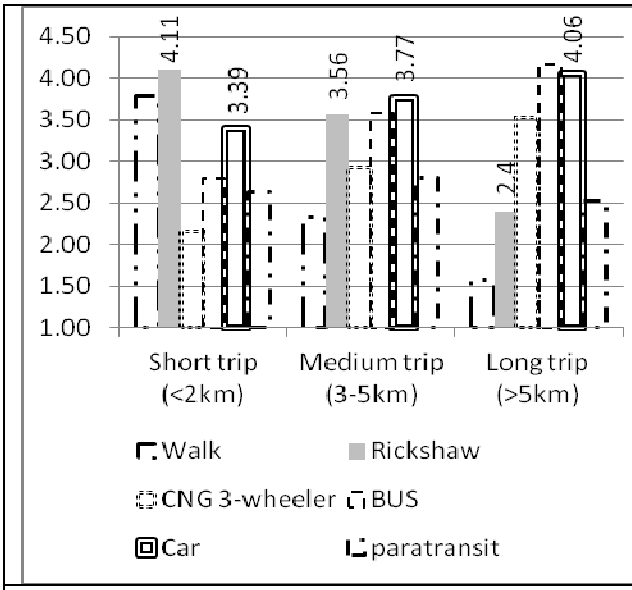


Figure 5.2: Mean rating of different modes for different trips by all respondents

Source: Appendix D, Tables D.14, D.15 and D.16

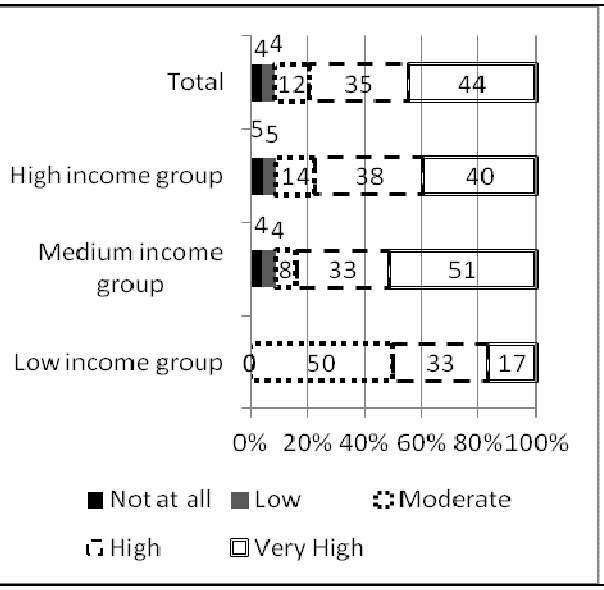
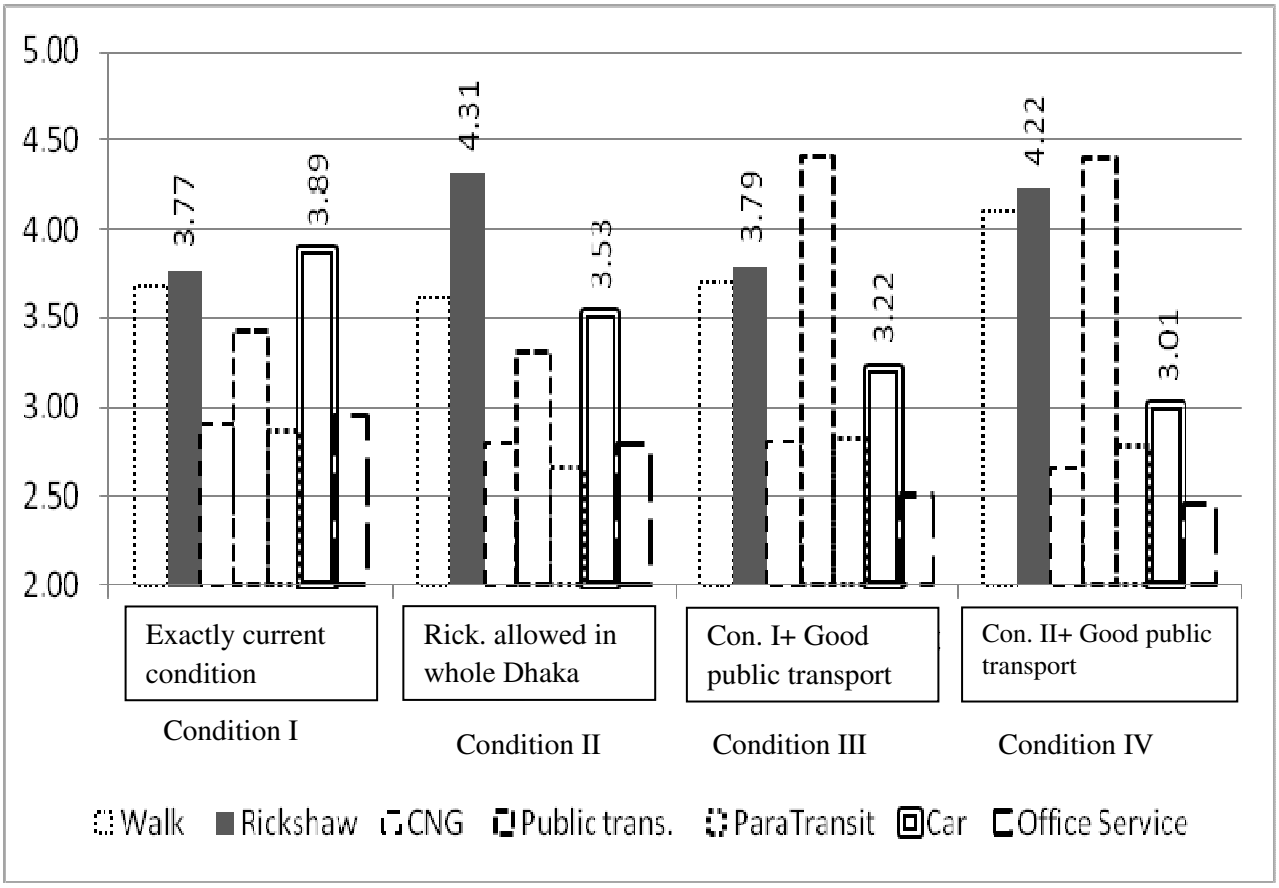


Figure 5.3: Share of ratings of importance/ usability of rickshaw for short trip by household income level

Source: Appendix D, Table D.17

The then situation, when seen in terms of the *access, competence* and *appropriation* of *existing* and *potential mobilities*, in study areas failed to meet the preference (expressed in their ratings above) of the respondents. Under current conditions (Figure 5.4) their highest choice (calculated as the mean of ratings, made in a scale of 5, see Appendix D, Table D.18) was the car! However, when the conditions were changed, hypothetically, the choice of car as a mode declined. When current bans and restrictions on rickshaws were withdrawn, i.e. rickshaws were, hypothetically, allowed in all the roads in Dhaka, the mean ratings of all other modes decreased except for rickshaws; this made rickshaws the top most choice. When

public transport was hypothetically introduced in both rickshaw banned condition and rickshaw allowed (in entire Dhaka) condition, i.e. in condition 'iii' and 'iv', the mean ratings for all other modes decreased making public transport top choice in both cases. However, interestingly, in both conditions rickshaws were chosen as the second most rated mode followed by walking; ratings the car dropped down to fourth place.

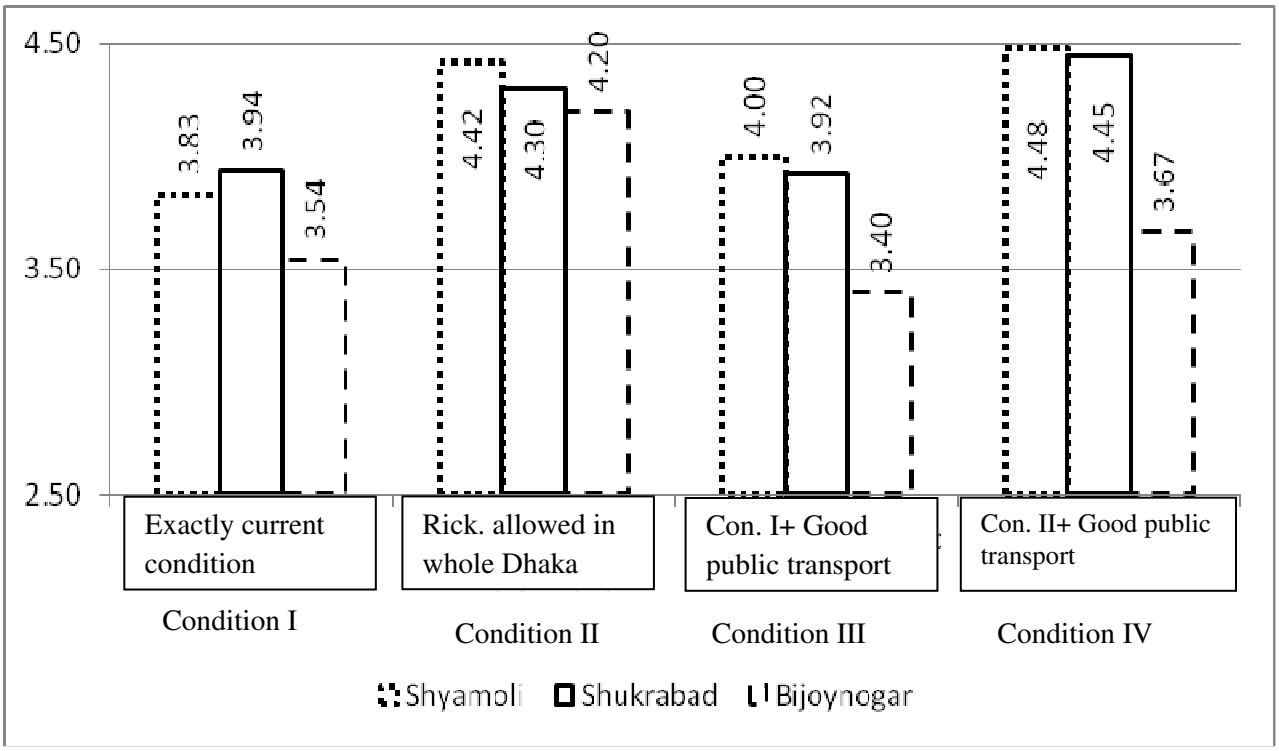


Con.-Condition

Figure. 5.4: Mean of choice ratings (in a scale of 5, 1-lowest, 5-highest) of modes by the respondents under different conditions
Source: Appendix D, Table D.18

If the choices of rickshaw by the respondents in the three areas were compared under different real or hypothetical conditions (Figure 5.5), a similar trend appeared. However, under the prevailing condition rickshaw was a less preferred mode in Shyamoli than in Shukrabad; maybe due to the effect of breaks of journey and other associated problems. However, when rickshaws were (hypothetically) freed of restrictions or integrated with public

transport it got the highest preference. In case of Bijoynogar, it was found that the preference for rickshaws reduced - contrary to increase in the two other areas - when public transport was introduced, hypothetically. A low preference for rickshaws in Bijoynogar might be associated with better public bus service (compared to the other two areas) for covering short or medium distances, and higher car-ownership.



Con.-Condition

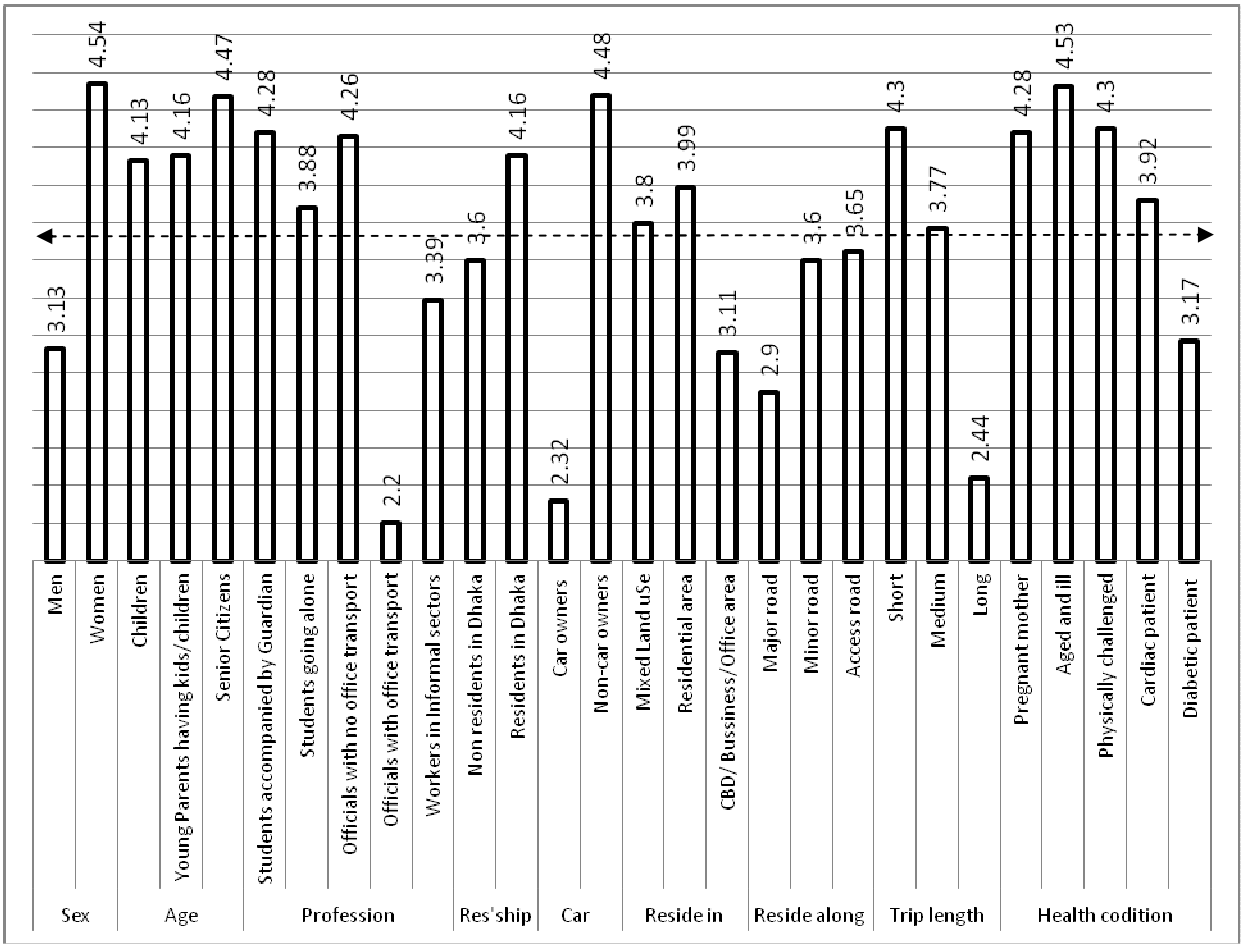
Figure. 5.5: Mean of choice ratings (in a scale of 5, 1-lowest, 5-highest) of rickshaw by the respondents in different areas under different conditions

Source: Appendix D, Tables D.19, D.20, D.21 and D.22

5.7 Identifying losers

Based on results of the reconnaissance survey and pre-testing of the questionnaire, a list of different categories of people was shown to the survey respondents to gauge their perception. They were asked to assign a level (in a scale of 5, 1 for minimum and 5 for highest) of adverse effects they faced due to the withdrawal of rickshaws. The mean of their ratings for each group of people is presented in figure 5.6. It shows that women, the old and ill persons,

non-car-owners were perceived to be the greatest loser groups among the adversely affected persons, with mean ratings 4.54, 4.53 and 4.48, respectively. While, officials with office transport (2.20), car-owners (2.32) and long trip makers (2.44) were seen as being those who lose at the least; unavailability of rickshaws to reach the destinations on rickshaw banned/restricted roads did not affect them, nor they have to experience breaks in journeys.



*Double arrow line denotes the average (3.76) value line of all mean ratings done in a scale of 5 (1-least, 5-highest)

Figure 5.6: Means of ratings of the respondents identifying the level of adversity faced by groups of people

Source: Appendix D, Table D.23

The mean of all mean values, in figure 5.6, is 3.77. Based on this mean of all means, the research has identified three categories of perceived losers: most (mean 3.76 and above), moderate (mean from 3 to below 3.76) and less (mean below 3). Table 5.2 shows these three categories of losers.

Table 5.2: Categories of perceived losers due to bans and restrictions on rickshaw movement

Loser group		**Most affected (mean> 3.9)**	**Moderately aff. (mean 3 - 3.9)**	**Less affected (mean < 3)**
Based on	Name of the group			
Sex	Men		√	
	Women	√		
Age	Children	√		
	Young Parents with kids/children	√		
	Senior Citizen	√		
Nature of Work/ profession	Students accompanied by Guardian	√		
	Students going alone	√		
	Officials with no office transport	√		
	Officials with office transport			√
	Workers in Informal sectors		√	
Resident-ship	Non residents in Dhaka		√	
	Residents in Dhaka	√		
Car-ownership	Car owners			√
	Non-car owners	√		
Resident in (Type of land use)	Mixed land use	√		
	Residential land use	√		
	CBD/Business/office area			√
Resident along (type of road)	Major Road			√
	Minor Road		√	
	Access Road		√	
Length of trip	Short trip	√		
	Medium trip	√		
	Long trip			√
Physical/ health condition	Pregnant mother	√		
	Aged and ill	√		
	Physically challenged	√		
	Cardiac patient	√		
	Diabetic patient		√	

Source: Field survey, 2012

It is found that most of the groups (in table 5.2) are in the most affected category and only a couple of loser groups are less affected due to bans/restrictions. In the moderately affected

category there were informal sector workers and non-residents in Dhaka[64]. The informal workers like hawkers, vendors in many cases use to carry the goods they hawk or vend by mode like rickshaw. So in the perception of the respondents the bans and restriction affect them moderately. On the hand, non-residents of Dhaka use to face severe problems while making short and medium trips. Being strangers in Dhaka they do not know their destinations well and also do not know public transport links, if any, to the places they want to go. So their first and best choice is rickshaw; CNG is costly for any user- resident of non-resident. But the problem of the non-residents due to rickshaw bans/restrictions is transitory, whereas for residents in Dhaka problems in *mobilities* are everyday experiences. This may explain why the respondents, who were residents in Dhaka, perceived themselves as more adversely affected than the non-residents.

5.8 Statistical validity of the findings

This section provides a brief note on the statistical validity of the findings from household survey which are already stated in this chapter. The results of Chi-square tests are summarised along with interpretations in table 5.3. It should be mentioned that in the Chi-square test if probability (*P*) value is less than 0.05, the null hypothesis, which usually hypothesise of no difference between the variables concerned, is rejected.

[64] As it has already been stated that during reconnaissance survey no rickshaw was found going to or coming from slums, neighbouring the study areas, Studies like Zohir (2008), Zohir, *et al.* (2008) indicate that poor people including those working in readymade garment factories in Dhaka mostly walk to reach their destinations for different activities

Table 5.3: Results of Chi-square tests

Presence of rickshaw bans and restrictions during movement for different activities					
	Table	**Variables**	***P***	**Decision**	**Interpretation**
1	D.2*	Presence of rickshaw banned corridor or intersection on the respondents' way to *time-bound (routined)* activities in three study areas	0.074894	*P* >0.05, Null hypo-thesis is accepted	Despite difference (based on length of bans/restrictions) in study areas, there is no difference in terms of presence of bans/restrictions on the way of *Time-bound (routined)* activities. It means, although respondents /people know where the bans/ restrictions are, they could not change their activity/route/destination etc. i.e. they are compelled to use the banned/restricted routes/roads for different reasons including having no other alternatives.
2		Presence of rickshaw banned corridor or intersection on then way to *time-flexible (other)* activities in three study areas	0.005594	*P* <0.05, Null hypo-thesis is rejected.	But here in case of *time-flexible (other)* activities difference exists among study areas i.e. in study areas respondents have adjusted their activities in different ways: avoiding ban/restriction by changing destination, frequencies, tagging with other activity etc.
3	D.3	*Time-bound (routined)* activities and presence of rickshaw bans/ restriction on their way to the activity	0.000900	*P* <0.05, Null hypo-thesis is rejected.	Having found difference in presence of bans/restriction on the ways to *Time-bound* (routine) activities in three areas, Appendix D, table D.3 shows that there is also difference in presence of rickshaw bans/restrictions in different types of *Time-bound* (routine) activities. And since the null hypothesis is rejected, this difference is not by chance or sampling error. Rather, really bans/restrictions are present on the way to different types of *time-bound* activities.
4	D.4	Sex and presence of rickshaw bans/restriction on their way to *time-bound (routined)* activities	0.368816	*P* >0.05, Null hypo-thesis is accepted.	Since null hypothesis (which means no real difference in total population) is accepted, presence of bans/restrictions does not vary among sexes. It illustrates that both sexes are affected on their ways to do *time-bound (routined)* activities. Among the sexes, the other findings and discussion in this chapter shows that, women are more affected.
* 16.67% cells having expected value less than					

	Table	Variables	*P*	Decision	Interpretation
5		Sex and presence of rickshaw bans/restriction on their way to *time-flexible (other)* activities	0.000014	*P* <0.05, Null hypo-thesis is rejected.	Here null hypothesis is rejected. It means that presence of rickshaw bans/restrictions on the ways to *Time-flexible* activities are sex dependent i.e. any of the sexes is more affected. So, conclusion made in this chapter - women experience more bans/restrictions on their ways to their activities - is statistically proven. FGD-participants, who are mostly females, also reported the same.
6	D.5	Age group and presence of rickshaw bans/restriction on their way to time bound *(routined)* activities	0.004890*	*P* <0.05, Null hypo-thesis is rejected.	Since null hypothesis is rejected, it is statistically proven that respondents and household members of different age groups experience presence of bans/restrictions differently on their way to *time-bound (routined)* activities. In fact, this chapter has concluded that children and senior citizens are more affected due to bans/ restrictions.
7		Age group and presence of rickshaw bans/restriction on their way to time flexible *(other)* activities	0.379084	*P* >0.05, Null hypo-thesis is accepted.	However, in case of *time-flexible (other)* activities null hypothesis is accepted i.e. no difference is found for age groups. So people of all age groups are facing difficulties while accomplishing this type of activities.

* 16.67% cells having expected value less than

Forced choice of options for mobilities					
8	D.11	Forced car ownership (yes or no)	1.96E-33	*P* <0.05, Null hypo-thesis is rejected.	Since null hypothesis is rejected, the difference in forced car ownership or non-forced ownership is statistically proven i.e. forced car ownership is really happening in the study areas along with car ownership due to increased income and other reasons.
9	D.11	Forced bus ridership	0.100861	*P* >0.05, Null hypo-thesis is accepted.	Interestingly, here null hypothesis is accepted. So, bus ridership is not different due to bans/restrictions or in other words people using buses are more or less same. In fact this and other studies found that bus ridership increased in Mirpur road immediately after the first rickshaw ban in 2002 as some new buses and routes were introduced. However, as many buses were either withdrawn or went out of order bus ridership reduced. And rickshaws are being used widely, despite bans/restrictions, in the study areas.

	Table	Variables	*P*	Decision	Interpretation
10	D.11	Forced walking to avail next mode	3.37E-12	*P* <0.05, Null hypo-thesis is rejected.	As null hypothesis is rejected, forced walking is definitely is an effect of rickshaw bans/restrictions. Rickshaw users have opted for walking finding no other alternatives.
11		Forced to arrange contact-rickshaw to *routined* destinations	1.46E-28	*P* <0.05, Null hypo-thesis is rejected.	As null hypothesis is rejected, forced arrangement of rickshaw is a statistically proven direct effect of rickshaw bans/restrictions.
12		Forced to arrange contact-CNG to reach *routined* destinations	6.24E-38	*P* <0.05, Null hypo-thesis is rejected.	As null hypothesis is rejected, forced arrangement of CNG is statistically proven as a direct effect of rickshaw bans/restrictions.
13		Forced to arrange School Van for school goers	1.12E-36	*P* <0.05, Null hypo-thesis is rejected.	As null hypothesis is rejected, forced arrangement of school van for carrying school going children is a proven is direct effect of rickshaw bans/restrictions.
14	D.12	Forced car ownership in three study areas	0.005203	*P* <0.05, Null hypo-thesis is rejected.	As null hypothesis is rejected forced car-ownership in all three areas is different; that is, forced car ownership is area sensitive.
15		Forced to arrange contact-rickshaw in three study areas	0.014711	*P* <0.05, Null hypo-thesis is rejected.	Forced arrangement of rickshaw in all three areas is also proven area sensitive.
16	D.12	Forced to arrange school Van for school goers in three study areas	0.010297	*P* <0.05, Null hypo-thesis is rejected.	Forced arrangement of school vans in all three areas is area sensitive.

Direct effects on the rickshaw journey experiences					
	Table	**Variables**	***P***	**Decision**	**Interpretation**
17	D.9	Break of journey on the way of respondents activities	3.81E-26	*P* <0.05, Null hypo-thesis is rejected.	Report of increase in break of journeys is proven
18	D.10	Break of journey on the way of respondents activities in three study areas	0.006718	*P* <0.05, Null hypo-thesis is rejected.	Increase in break of journeys in all three areas have been proved.
19	D.9	Cost of mobility	8.73E-18	*P* <0.05, Null hypo-thesis is rejected.	Increase in the cost of mobility is proved
20	D.9	Distance of rickshaw trip	0.082415	*P* >0.05, Null hypo-thesis is accepted.	However increase in distance travelled by rickshaw has not been proved. It may be interpreted that respondents are preferring/forced to use different modes, resulting many breaks of journeys (and hence increase in cost), more than a continuous and long distant rickshaw journey
Indirect effects on the rickshaw users					
22	D.9	Crowd and discomfort in public bus	2.20E-07	*P* <0.05, Null hypo-thesis is rejected.	Earlier it has been proven that bus ridership has not changed for bans/restrictions. However, here increased crowding and discomfort is statistically proved. Rapid increase in population could be one reason. Plus at times buses become very irregular and are withdrawn from road with different excuses, which also increase the problem.
23	D.9	Children's school attendance	6.44E-06	*P* <0.05, Null hypo-thesis is rejected.	A good number of respondents' answer that rickshaw bans/restrictions have increased reluctance of the children to go to school is proven to be statistically valid, that is the answer is not simply by chance.
24	D.9	Carrying sick people	0.000889	*P* <0.05, Null hypo-thesis is rejected.	Problems in carrying sick people to hospital/clinic is proven.

Mixed reflection regarding changes in speed and congestion					
	Table	**Variables**	***P***	**Decision**	**Interpretation**
25	D.13	Experience of congestion in Rickshaw allowed road	1.64E-05	*P* <0.05, Null hypothesis is rejected.	Increase of congestion in rickshaw allowed roads is proven.
26	D.13	Speed of motorised traffic	0.232439	*P* >0.05, Null hypothesis is accepted.	Since null hypothesis is accepted there is no difference or change in speed of motorised transport. *i.e.* no conclusive statement (if the ban has or has not increased the speed) can be made.
Perception and choice of rickshaws and other modes					
27	D.17	Mean rating of usability/importance of rickshaw for short trip by household income groups	0.56974	*P* >0.05, Null hypothesis is accepted.	The difference in mean ratings (of usability of rickshaws for short trips) by different income groups has rejected i.e. no difference exists among the ratings. It supports the conclusion that although car users are beneficiaries of rickshaw bans, usability of rickshaws to them has not decreased. Rather rickshaw is important for all, as far as short distances are considered.

*All the tables are in Appendix D

Source: Field survey, 2012

5.9 Conclusion

This chapter has illustrated that adverse effects of rickshaw bans and restrictions permeated all strata of the communities in the study areas, as far as *mobilities* were concerned; there were differential impacts (real or perceived) depending on sex, age, health condition, housing location, trip and nature of work/profession. However, women were found to be those who lose more as almost all the activities they used do, which were mainly short and medium length trips, were highly affected by the decision to reduce circulation of rickshaws. By contrast, personalised car users-car, car owners and officials provided with cars by the offices, were least affected by the bans. Rather this facilitated their long distant trips. However, since non-driving members in car-owning households had to use rickshaws, for different activities, they also suffered from the restrictions on rickshaws.

Area-wise response following the rickshaw bans and restrictions showed that areas with greater incidence of car-ownership and comparatively better public bus service suffered less frequent breaks of journey and other problems. However, preferences for rickshaws remain untamed in different real and hypothetical situations. As soon as rickshaws were hypothetically freed from restricted movement, respondents jumped for it. However better integration with public transport could reduce the modal shift to an extent, but modal choice for rickshaws will/would continue, as evident in the response of the respondents.

Chapter 6

The *process* of rickshaw bans and restrictions and the *politics* of *(im)mobilities* in Dhaka

6.1 Introduction

As has already been discussed, by *process* this research means the decision-making process including background studies, policies, implementation tools and strategies; *politics* means arrangements to generate and guide the *process* to result in outcomes serving subjective interests and motivation(s)- usually concealed in the vision of the plans and decisions, implicit in the process and explicit in the outcomes. Based on the literature and semi structured interviews with the experts, academics, citizen activists, concerned officials, decision makers/politicians, rickshaw (garage) owners and *rickshaw-wallas,* this chapter discusses the process of rickshaw bans and restriction in Dhaka in general and in the study areas in particular, and the associated politics of *(im)mobilities*. At first it examines the set of measures seeking the complete ban and restriction on the movement of rickshaws. Then the key features of the *politics* of rickshaw bans and restrictions, discussed under the notion of politics of *(im)*mobility is outlined; this reveals a complex range of interests among global-local ('glocal') actors and a socio-politico-decisional structure of a coalition against NMT, supported by a normative vision for a car-oriented planning.

6.2 (Biased) Transport policies, studies and plans - bans or restrictions on rickshaws

Attempts to ban rickshaws in Dhaka are not new. A veteran academic and President of a professional body[65] remembered of attempts in the 1960s (contemporary to the period of rickshaw ban in Karachi, Pakistan) in the then East Pakistan (now Bangladesh) to withdraw rickshaws from important Dhaka roads.

The first ban in the Dhaka City Corporation (DCC) area was imposed by Dhaka Metropolitan Police (DMP) in two roads in Motijheel (the central business district) in June 1981 and lifted on the following September due to strong protests by a 'union'[66] of

[65] Interviewed during fieldwork

[66] Advised and helped (to get organisational license) by a small left-wing party. Later a federation of rickshaw-wallas unions across the country was formed and collapsed in 1982 - when Martial law was declared after military Coup - mainly because of the top-down nature of the federation which had little to do with different nature of problems in different parts of the country. Later on

rickshaw-wallas (Gallagher, 1992:569-571). The first successful closure was on Airport Road in December 1986[67] with an official logic of its being a 'VIP road' (though not due to congestion); in reality the President[68] wanted the route to and from the airport to be free-flowing (Gallagher, 1992:578-81). For the next two weeks there were protests and strikes[69]. Then suddenly DCC announced the issuance of licenses for rickshaw and rickshaw-vans and "nearly 90,000 were issued"[70]; the strike was called off, and the idea of a 'VIP road' was quietly shelved. In April 1987, the government again announced a plan to completely ban rickshaws in the city on "safety grounds" but this never materialised (Rahman, *et al*., 2009). In fact, safety issue is another popular anti-rickshaw logic: rickshaw is very light to withstand the thrust of other motor vehicles, being its passenger is unsafe as there is nothing like 'seat belts', etc. But in 2011, out 400 accidents in Dhaka Metropolitan (DMP) area 97 accidents involved rickshaws and all of them involved injury or fatal casualty to the rickshaw passengers mostly due to the violation of traffic rules (e.g,. speed limit, lane guidelines) by the drivers of the motor vehicles and in some cases for the sudden lane change or right turn by the rickshaw i.e. *rickshaw-wallas* (ARI, 2012). So, safety is more concerned with application and obedience to traffic rules, not with rickshaw, as a mode.

In 1992, UNDP supported the Planning Commission of Bangladesh Government for the preparation of a comprehensive Dhaka Integrated Transport Study (DITS) including a transport database, action plans and local capacity building (DITS, 1994b:1). The very first page of the DITS report is noticeable: ″many observers have commented on the need of various forms of transport infrastructure development from fly-overs to high capacity commuter rail systems... [A] shortage of development funds has held back the implementation of such capital intensive proposals″. This is the time when the Bangladeshi economy was liberalised, large scale privatisations started (Monem, 2001) and World Bank was increasingly providing 'urban sector loans' to a multitude of sub-projects, making monitoring difficult (Hook & Replogle, 1996:83).

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a section of union joined 'kings party' and another merged with '*Malik Sangram Parishad*" (organisations of owners) (Gallagher, 1992:567-77)

[68] A military dictator

[69] One failed for pro-government side's unwillingness

[70] Meanwhile, several organisations of *rickshaw-wallas* and *maliks* (owners) issued 'number plates' of their own (which in total rose to 8,000) to give rickshaw-wallas 'a degree of protection' and put pressure on the authority.

On the one hand, DITS was the first technical attempt to give attention to NMT (by proposing segregation from MT, licensing all rickshaws, introducing insurance for *rickshaw-wallas* etc.) and, on the other, it also proposed banning them to keep the primary roads congestion free[71] and "open only for motorised modes" (DITS, 1994a:119-131; see also Appendix F, Table F.1). The syllabus of the DITS fellowship programmes for Bangladeshi officials in Australia and Thailand (DITS, 1994b:K-1-K-3) made no reference to NMT or rickshaws but to transport modelling; plus several cities visited as part of study tours (*ibid*:L-1) were those which had 'systematically' destroyed NMT.

Then came the World Bank funded (contributing US$177.0 million) (World Bank, 2005:13) Dhaka Urban Transport Project (DUTP) Phase-II (total project cost US$234.2 million, rest US$57.2 million given by the Government of Bangladesh) in 1999 based on DITS and DUTP-Phase-I (initiated in 1996) and an aide-memoire of a pre-appraisal Mission of World Bank in 1998 (GoB, 1999:i). The philosophy of DUTP is quite clear in its project proforma: the "[d]evelopment of the economy of Bangladesh will depend on it attracting a share of global investment. Dhaka, as the nation's gateway for such investment, must be provided with a reliable, secure and comfortable transport system if it is to compete successfully with other major cities" (GoB, 1999:32). One of the expected benefits is the increase in average speed of motorised vehicles from 15km/hr to 30km/hr by the end of the project (*ibid*:72). DUTP involved DCC, DMP, DTCB (Dhaka Transport Coordination Board), RAJUK (Capital Development Authority) and consisted of construction works (for new road, grade-separator or fly-over and footpath, road channelisation, installation of automated signaling, bus lane etc.-76% of total cost), equipment purchase (5% of the cost and mostly for DMP[72]), NMT protection measures (NMT and MT separation in major roads, separate NMT lane construction, NMT network development in whole Dhaka, NMT underpass development and declaration of a couple of areas as NMT zones etc.) (World Bank, 2005; JICA, 2010). Interestingly, the very first

[71] Taylor (2004:299) states that as part of a 'politics of congestion mitigation' at first public officials, exaggerate the consequences of metropolitan traffic and then "cynically use congestion as a rationale for funding high-profile, politically-popular projects".

[72] Note that police, an important organ of state machinery, is being funded and equipped by a project in other sector under other ministry. So, there should be less, or no, reason for DMP, which is ill equipped to handle the duties and responsibilities they are entrusted with, to show lack of interest in such project.

meeting of the Public Consultative Meeting of DUTP-Phase-1 proposed to ban rickshaws in 200 km of main roads and in the long run to phase out them (UN-ESCAP, 1997:7-1).

Although many of the infrastructure components of the DUTP were implemented, the expected number of new bus or bus routes did not come into roads (plus several new buses/routes were withdrawn after a couple of years). Plus, a citizen activist[73] informs that NMT lane and other compensatory measures for rickshaw movement were never carefully implemented or maintained while the automated signals installed lacked synchronisation for rickshaws and cycles (Bari & Efroymson, 2005a:18-19). No NMT zone network was implemented either.

In 2002, DCC initiated - as part of DUTP - the implementation of the "*NMT-Free Arterial Network – Phased Implementation Plan"* (STP, 2005b:3-4) for a phased withdrawal of rickshaws from major roads in Dhaka City (see Map 6.1) to increase speeds in major arterial roads (World Bank, 2005). Mirpur Road (Gabtoli-Russell Square) and Panthapath (Russell Square-FDC) were made rickshaw free in December 2002 for demonstration on a pilot basis as part of the plan to make 120 km roads rickshaw free in Dhaka (HDRC, 2004; New Age, 2005a).

Initially some segments of the corridors had separate rickshaw lanes. A *rickshaw-walla* shares his experience[74]: "*as the rickshaws are innumerable, there were always queues in the lane which spread and stretched up to the intersections and clogged them. Besides many rickshaw-wallas used to defy the lane-rule and move on the lane for motor vehicles. At times my passengers also insisted me to do so. Although traffic police got very rude with us at times, but let loose when they got tired in an unreasonable war. Ultimately NMT lanes in many roads were abolished followed by a full ban of the rickshaws in those segments*". Based on a comparison between 2000 and 2005, no immediate increase in car mobility is evident (DSM Consultants, 2006); HDRC (2004:v) has found nine minutes saving per passenger per day in the Mirpur road demonstration corridor - the first rickshaw banned road. Rather MTs and pedestrians started to face new problems due to diverted

[73] Interviewed during fieldwork
[74] Said in a focus group discussion (FGD) with rickshaw-wallas

rickshaws in local and other roads they (MTs and pedestrians) used to use (Majumder, *et al.*, 2009). But public misery in terms of transport and livelihoods[75] (particularly for *rickshaw-wallas*) increased enormously (HDRC, 2004; Efroymson & Bari, 2005). Ultimately, in the face of popular dissent and civil activists' protests (see Efroymson and Bari, 2005 for an account) the World Bank withdrew its support for any sort of NMT ban in 2005 and also demanded measures for including NMT and users' protection measures (New Age, 2005a and 2005b; World Bank, 2005; Hummel, 2008; Efroymson & Bari, 2005:35). The DCC and the government remained undecided, fearing "a negative impact in the national election of 2006" (Daily Star, 2004).

On the eve of the 2002 ban, several associations of *rickshaw-walla* and *malik* (owner) started selling 'license plates'[76] (see Appendix G, Photographs for a couple of license plates issued by different associations). An association close to the then party in government eventually reached a tri-partite 'verbal' agreement with DCC and DMP to issue new rickshaw licenses. In the name of this agreement, they sold as many as 43,000 'license plates' which led to the filing of several court cases against the association/its leaders (who sold 43,000 licence plates) by DCC in the following years when another political party came into power. But things ultimately ran nowhere. These 'license plates' are still in evidence today (See Appendix G; last three photographs of the different 'license/number plates' issued by three different rickshaw owners associations). In fact, Nayadiganta (2012) reports that 'license/number plate' business still exists and around one million new 'plates' (each costing Bangladeshi Tk 500 for two months) have been issued in the last four years by as many as 28 associations involving Bangladeshi Tk 400 million. As per the report, the money went to the corrupt officials/staffs of DCC and DMP. DCC employees identify rickshaws with expired or no 'plates' and police seize and dump those unless freed by the owner at the cost of Bangladeshi Tk 4-5 thousand. Again focus group discussions (FGD) with the *rickshaw-wallas* during fieldwork (See Appendix E, FGDs) reveals that there are also thieves - appointed by some associations - to steal rickshaws which are released only after providing ransom. However, rickshaws having 'licence plates' of different associations, are usually not stolen by the thieves who are also

[75] However, examination of the impact on livelihood and income is out of the scope of the study.
[76] Informed the DCC official interviewed

appointed by those associations. Thus *rickshaw-maliks* or *rickshaw-wallas* are compelled to buy a 'license plate' form those associations to avoid their rickshaws being stolen. During fieldwork some rickshaws were found to have such 'license plates' issued by several associations, although they had an original DCC license. Thus the vicious circle of money collections and distribution continues with informal assurance of 'hassle free' movement rickshaws on roads (rickshaw banned or not). Etzold (2012), quoted in Hackenbroch (2013:51), also found a similar cycle in the "regular" state-led evictions of street vendors in Dhaka which carried out to "serve as a reminder to the ordinary to continue their regular payments to the powerful and thus as a means to re-confirm existing power relations".

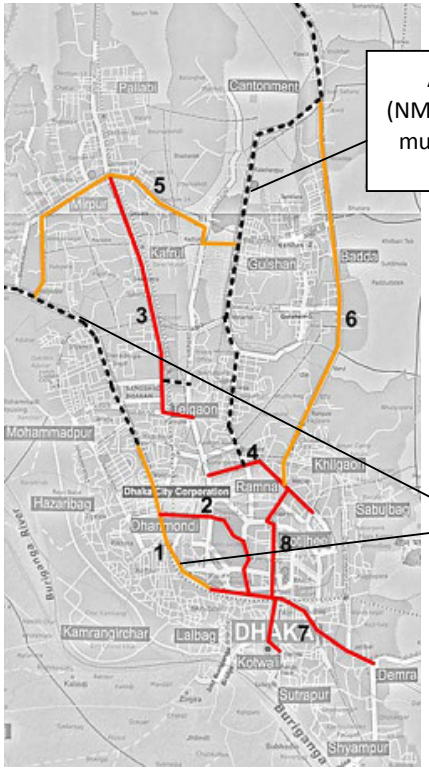
Although the rickshaw ban plan (as seen in map 6.1) of DUTP has never been abandoned nor fully executed, it has been learnt during fieldwork that in recent years another practice of unorganised/unplanned restriction on rickshaws in particular intersections or segments is in full swing. It is being done by the traffic department of DMP in the name of easing congestion in the road and ensuring a smooth flow of vehicles. Once the NMT phasing out started as per DUTP in December 2004 (December 2002 phase out was a pilot phase of this project), DMP started this practice of adding new roads in the restriction list and implemented it during public holidays[77]. Many roads, which are not in the original plan, i.e. DUTP, are rickshaw free now. Maps 6.1 and 6.2 show the difference up to 2012. Latest report in the Daily Star (2012) says that as many as 22 roads (longer sections) and eight link roads (quite short sections and junctions) are now off-limit to rickshaws.

Meanwhile the National Land Transport Policy (NLTP) of 2004 argued for the continuation of a 'progressive ban' of rickshaws on major roads, aiming to reduce rickshaw trips by half in Dhaka over the following ten years. Most interestingly it envisaged an increase in the share of car trips up to 30% of all mechanised trips of 2022 (GoB, 2004:32-42) compared to only 15% in 2004 (STP, 2005b) and 9.94% in 2009 (JICA, 2010).

[77] Such an example is reported in Bari & Efroymson (2005b:32) where a road adjacent to Mirpur road was also made off limit for rickshaw without any declaration and plan.

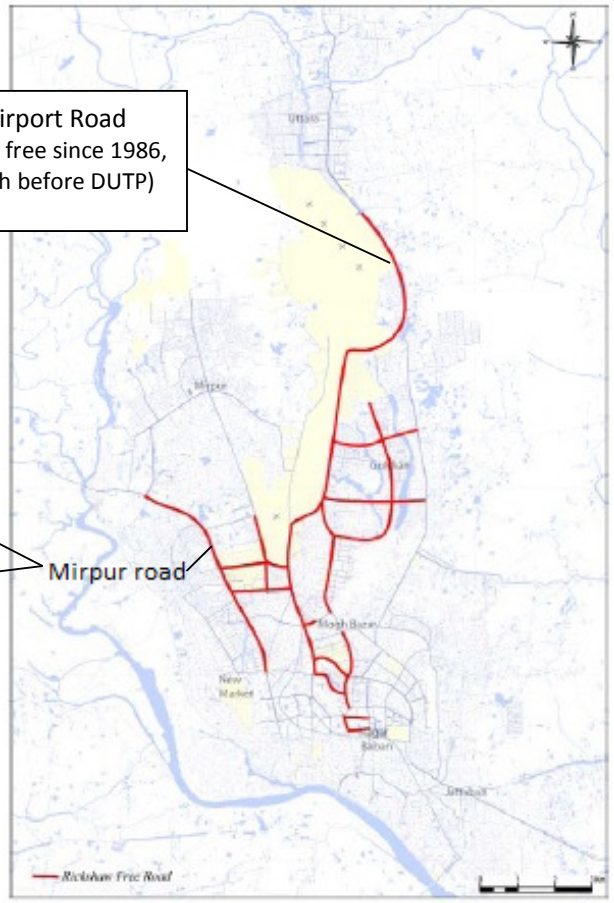
Map 6.1: Proposed rickshaw free roads as per DUTP

Roads	NMT phase out target time
1. Mirpur road (Gabtoli-Russell square-Azimpur) Gab	31-08-2004 However, Dotted section of Mirpur road made NMT free in December 2002, as part of the demonstration projects
2. New elephant/Bhasani road (Science Lab-Shahbagh-Matshyavaban-Press club-College road)	
3. Rokeya sarani (Mirpur 10-Taltola-Agargaon-Farmgate)	31-05-2005
4. New eskaton/ Circular road (Bangla motor-Moghbazar-Mouchak-Malibagh-Rajarbagh)	31-07-2005
5. Technical (Technical-Mirpur 1 & 2-Kachukhet- Banani)	30-09-2005
6. Progati sarani/DIT road (Kuril-Baridhara-Badda- Rampura-Malibagh-Mouchak)	30-11-2005
7. Zohir Raihan sarani/Hatkhola road (Azimpur-Fulbaria-Tikatuli-Saidabad)	31-12-2005
8. North-Sourth/English road (Malibagh-Kakrail-Puran Paltan-Zero point-Fulbaria)	31-07-2006



Source: Efroymson & Bari, 2005:27

Map 6.2: Rickshaw free roads in Dhaka in 2010



Source: JICA, 2010:4-15

After DUTP, the World Bank-funded Strategic Transport Plan (STP) 2004-2024 was prepared by DTCB in 2004 with the major objective to establish a sound policy framework for sustainability of current and future investments in the transport sector (JICA, 2010:10-6). One of the main activities done was the development of a computer simulation model to guide and evaluate planning strategies. Such simulation models do not take into account rickshaws, walking or short trips in many cases for methodological inability to incorporate them or deliberate exclusion of them to make the model calibration less time and effort consuming (Bari & Efroymson, 2005b; Rodriguez & Joo, 2004; Ewing & Cervero, 2001; Wigan, 1995) and are more concerned to show that car-oriented development is cost-effective (Martens, 2006). Therefore, such models are no longer considered for multimodal transport appraisal (White, *et al.*, 2001). The estimated cost of the programmes/projects proposed in STP is US$ 5,519 million (excluding land and property acquisition costs) (JICA, 2011:10-8), with the allocation of funds as follows: 63% metro (serving 8% of all trips), 30% car-friendly projects (including expressways), 6.27% Bus Rapid Transit (BRT), 0.41% bus, 0.24%-pedestrian and 0.24%-rickshaws (Bari & Efroymson, 2008:6).

As the government 'expects' donor assistance in projects arising from STP, the Japanese aid agency JICA has come up to support DTCB in preparation of the Dhaka Urban Area Transport Study (DHUTS) with the aim of formulating an urban transport network development plan and projects (JICA, 2010:E-1-E-2). DHUTS claims to "open a new era of innovative transport system in Dhaka ... based on lessons learnt from many cities[78] in Asian countries...[with] Mass Rapid Transit (MRT) system as a backbone of transport system' (*ibid*:E-6-E-7). Simultaneously, the World Bank funded the Clean Air and Sustainable Environment (CASE) project launched in 2009 involving DTCB and DCC (JICA, 2010:10-12) for traffic safety, separation of MT and NMT and design of BRT (under its transport component). But a transport expert comments that "*the BRT, MRT routes and fly-overs, proposed and under construction, conflict with each other and the first one implemented will seize the feasibility and engineering possibility for the rest forever*"[79]. And a relevant project official[80] disclosed during an interview that "*we have*

[78] However, like many other academic literature, the post-DUTP appraisal (DSM Consultants, 2006), Bari and Efroymson (2006) contradict. So what Efroymson and Bari (2005:9) observe regarding STP, is also true for DHUTS- "It would appear that STP team members have not learned from the failure of similar policies in many developing cities of Asia, notable among them Dhaka (under DUTP), Jakarta, and Bangkok".
[79] Interviewed during fieldwork
[80] Interviewed during fieldwork

completed the study and design for the NMT lane in one road and are about to call for tender for implementation. But to our utter surprise DMP has recently banned rickshaw in that road". Baumgart and Kreibich (2011: 18) rightly observe: "Urban planning in the Metropolitan Area of Dhaka city is confronted with continuous violation of the legal planning documents"

6.2.1 Note on the rickshaw bans and restrictions in the study areas

Maps 6.1 and 6.2 show the proposed rickshaw banned corridors in DUTP and current (2010) state to rickshaw banned streetscape respectively. As has already been said (section 3.4.1) Shyamoli and Shukrabad are on the Mirpur road which was made rickshaw free in 2002. Bijoynogar is on corridor number 8 (map 6.1) and was stated to be made NMT free in 2006 as per original plan. But it has been partially made rickshaw free in the vicinity of Bijoynogar recently. Users and locals have informed, during field survey, that here restriction started since the early 2011. But the restriction was withdrawn after public and press uproar, as respondents of the household survey and reconnaissance surveys revealed during fieldwork. However, since the end of the 2011 the restriction reappeared and became permanent. However, no official announcement was there neither from DMP nor DCC. In fact DMP expressed its inability to provide any recent map of the rickshaw restricted roads when contacted, shared another transport researcher[81].

As discussed in the third chapter, any form of participation or consultation with the stakeholders ought to reflect their *need* or *expectation* to ensure justice. The respondents in the three study areas were asked if they were consulted before making and executing the decision of bans/restrictions. Almost all of the respondents (96.9%) answered negatively (Appendix F, Table F.2). The majority of the respondents (68.4%) claim that the decision is contrary to their mobility needs (Appendix F, Table F.3). 80% of the respondents from non-car-owning households said that the decision was contradictory to their and their households members mobility needs; even 40% of the respondents from car-owning households reported that the decision was contrary to their and their households members mobility needs (Appendix F, Table F.4). It shows not only the regular rickshaw users, who are usually non-car owners, are affected bt the rickshaw bans/restrictions, non-driving members are also in difficulties to conduct their daily mobilities. 76% of the respondents term the ban unexpected either to them or their household members (Appendix F, Table

[81] Interviewed during fieldwork.

F.5). Important to note, even among the respondents from car owning households 61% term it unexpected either to them or their households (Appendix F, Table F.6)[82]. It is also important to mention that from car-owning households about 60% of the respondents stated that the decision was not contrary to their needs and for 39% from it was neither unexpected nor expected. It strengthens the findings in the previous chapter (section 5.7) that non-car owners are one of the most affected losers of the decision, or in other words car owners and personalised car users (private and office provided car users) are those who are benefitted the most. So whereas, on an average 66% of all respondents do not agree with the idea of a complete ban of rickshaws and more than 70% from low and medium income group are on this side, there is a sharp decrease of the share to 58% for high income respondents who do not support the idea at all (Appendix F, Table F.7). And not surprisingly almost 60% of the car owners support the idea of a ban (Appendix F, Table F.8).

6.3 The *politics* of *(im)mobilities*: A *'glocal' coalition against* rickshaws

This research argues that car-oriented investment interests have brought under the same umbrella a range of global and local actors coalesced in an alliance against rickshaws, its users and drivers, facilitated by a politics of informal arrangements (in the form of illegality, extra-legality, corruption/rewards, collusive coalition-building, 'machine politics', biased knowledge production/application in the context of an urban elite-middle class mindset). It also argues that an alliance of autocrats and technocrats in the context of weak democracy is a breeding ground for such informal politics and decision making. Here planning decisions are taken less or non transparently with particular motivation of taking advantage of 'extra-legal' options available and known to the vested interest groups. In this case, the actors in the alliance include both institutions and individuals – donors, government (executives and businessmen turned politicians), patron-client based democratic/autocratic political machinery, project identifying and formulating bureaucrats (government/donors), consultants/experts and businessmen (national/international), government agencies-(implementing and operating)- DCC/DMP/DTCB/RAJUK, as well as a section of the urban elite and the middle class who have access to transport decision makers.

[82] Sections 3.2.1 and 3.4.2 show that a just process should also take the expectation of the stakeholders into consideration. But here in the case of rickshaw ban/restriction it has been found absent like consultation with and participation of people/end users in the decision making process

During the semi-structured interviews with the experts, academics, officials, decision-makers, politicians, questions were asked to identify the nature, position and timing of roles played by different stakeholders involving the decision making process for rickshaw bans/restrictions or having ability or possibility to influence the decision . Based on the interviews table 6.1 is prepared where the roles played by and levels of operation/authority of the actors are shown. The table shows that some actors play (i) immediate and active roles by executing/compelling the ban/restriction decision, while others play (ii) immediate yet hidden roles by instigating it or reaping benefits from it.

Table 6.1: Actors and their role in the rickshaw ban and transit restrictions in Dhaka

Role		**Scale**				**Actors** *(actors in italic means direct beneficiaries)*
Timing, position	**Nature**	**Local**		**National**	**Global**	
		Area	**City**			
Imme-diate, Non-policy sphere	Direct and active	√	√			-DTCB & DCC
			√			*-DMP*
			√			*-Personalised transport* using decision makers*
		√				*-Influential persons*
	Hidden	√				*-Rickshaw owners*
			√			*-Rickshaw Associations*
Delayed/ long-term, Mostly policy sphere	Stra-tegic		√	√		-Government (Elected/autocratic)
				√	√	-World Bank/Donor
				√	√	*- Bureaucrats (Donor/recipient) formulating/identifying project*
				√	√	-Experts (National/Int'l)
	Passive	√	√	√		*-DMP*, DTCB & RAJUK
			√	√		-Government (Elected/autocratic)
			√		√	-Experts (National/International)
				√	√	*-Businessmen*
			√	√		-Businessmen turned politicians

* Either private car owners or office provided car users

Source: Own elaboration based on Field survey, 2012

These two sets of actors work mostly in active/non-policy spheres in local (area/city) level fetching benefits ranging from personal mobility and financial gains (e.g. through corruption) to relief in organisational responsibility/duty entrusted (e.g. no rickshaw on roads, will make the DMP's job easier). Other actors play long-term (i.e. delayed/not immediate) roles mostly at the policy levels by influencing decision making for the ban/restriction. The nature of their roles are divided into (i) strategic (policy and project formulation) and (ii) passive (neither hidden, nor yet actively present in the field; rather

help in designing the policy into action or simply reap the benefits - mostly financial or organisational from the project)[83].

The roles, gains and scales of operation/authority are not always separate but they overlap. At different levels, the nature of the gains may also differ: financial, bureaucratic, organisational (e.g. DMP - obtaining equipment), perceptional ('modernisation' mindset), personal/household (mobility gain by car-owners, office goers, long distance trip makers, etc.). Gains may be conflicting as well (e.g. no rickshaw, no extra-money for DCC/DMP officials, associations). But an informal arrangement binds them together. Therefore, although NMT-friendliness is embraced in many progressive cities in the world, rickshaws are gradually being restricted in Dhaka, on one hand; yet on the other hand their numbers are increasing taking advantage of several ill practices.

So, a "relatively stable, cross-sectoral, informal and productive" (Stone, 2000, 2001) urban regime for motorcars exists in Dhaka. By contrast, the mass consumer of rickshaw service remains disorganised and *rickshaw-wallas* (mostly seasonal migrants, illiterate) still have no single organisations to represent their interests, revealed during fieldwork. Thus an 'organised encroachment of the powerful' (Hackenbroch & Hossain, 2012) make the poor *rickshaw-walla* the weakest actor in the chain of stakeholders and an easy prey to eviction. Figure 6.1 summarises the relations of the actors. The figure illustrates how the actors interact among them within the boundary of the politics for auto-based infrastructural investment and the politics of informality.

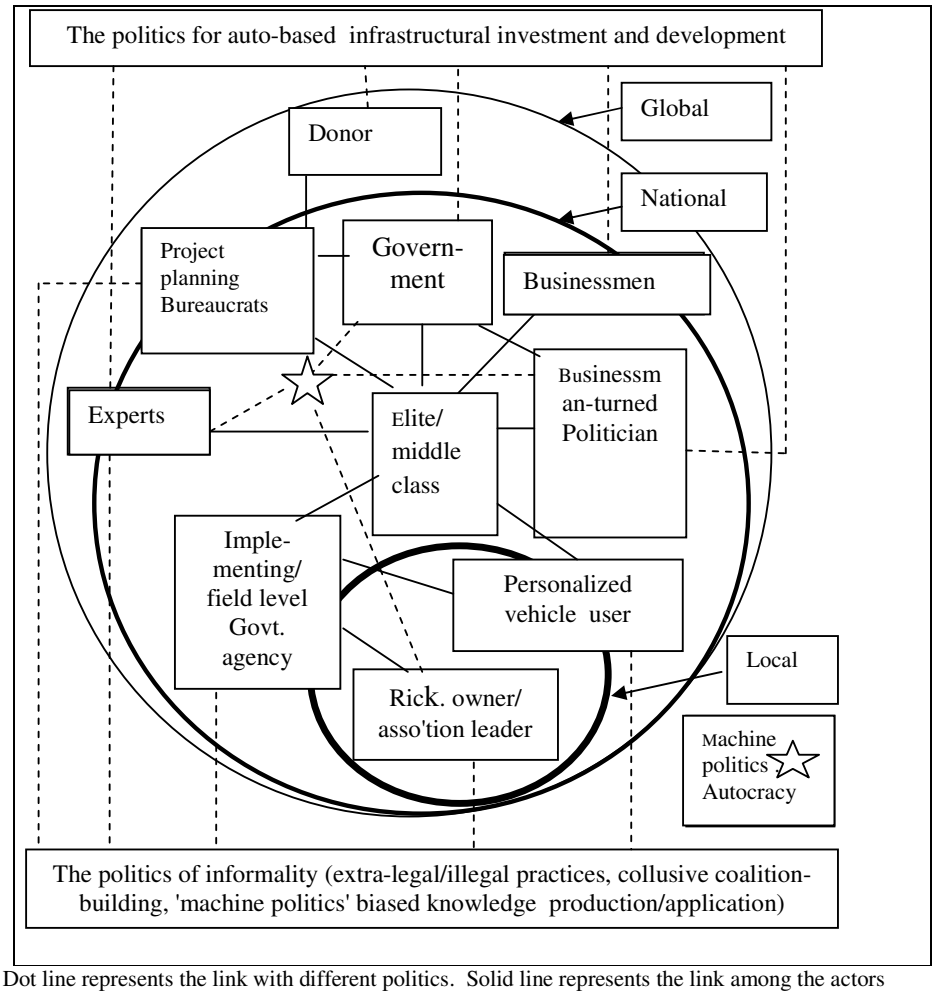
The following discussion sheds more light on the interests of different actors and the relationships among them.

A. Donors' concern

Transport concentrates major capital investment in less developed countries (Leinbach, 1995) accounting for up to 40% of all capital investment. Midgley (1994:4-6) shows that during the 1990s, 60% of World Bank aid went to the road sector and less than 2% to NMT. Hook and Replogle (1996:70) claim that facing the gradual decrease of auto exports to USA the Japanese government concentrated on expanding the market into East and Southeast Asia; Thailand, which usually imports 80% of its motor vehicles from Japan,

[83] But it should be mentioned that strategic and passive role players are neither mutually exclusive nor conflicting with each other (see table 6.1).

received Japanese investment of US$135 million and US$283.5 million in 1963-1986 and 1987-91, respectively, followed by a pledge of $500 million for the next five years after 1996. Whitelegg and Williams (2000:8) observe that although the World Bank has been promoting sustainable forms of transport on one hand, governments in the developing world, on the other, are still being encouraged to pursue transport policies linked to outdated notions of modernisation and car dependency. A similar observation comes from a member of the Advisory Committee of STP[84]: "*after attending several meetings, I was convinced that the ultimate purpose was to establish the need for investment intensive interventions like MRT and expressways under the coating of a scientific study. And it is not surprising that Japan, which is the primary source of imported (reconditioned) autos for Bangladesh, has recently expressed its interest to fund those projects"*.



Dot line represents the link with different politics. Solid line represents the link among the actors

Figure 6.1: The dynamics of a '*glocal*' coalition against rickshaws in Dhaka
Source: Own elaboration

[84] Interviewed during fieldwork

B. Government's gain

As automobile is a 'status symbol' (Hummel, 2008) and NMT is seen as 'primitive and outmoded' (Hook & Replogle 1996:82) and an 'insult to decision-makers' (Whitelegg & Williams, 2000:17), banning NMT reaps a political gain. A former Minister and now editor of a national daily offers clues of another special interest of the Bangladesh Government[85]: "*There is a trio of Prime minister, Foreign Minister and Finance Minister who usually do not or cannot say no to any option for getting foreign grant, loan especially when it is large and at low cost. Therefore often agencies are interested to formulate projects which will bring in dollars, but not quality or well-being to the people. It also creates a sort of competition among the government agencies to show competence in bringing in foreign funded projects"*. Thus intermediaries and officials even create unnecessary demand for aid (Sobhan, 2007). Efroymson and Bari (2005:4) allege that "STP is mainly designed to satisfy the needs of the project hungry bureaucrats".

C. Nexus between donors and recipient bureaucracy

Sometimes the interests of donors and government bureaucracy merge while formulating projects. "The donor bureaucracy may have set a target for Bangladesh for the year and can only hit this target if 3 or 4 [big] projects ... are cleared for placement before the Board for approval ... If any project is not finalised ... the aid target would crash and would reflect poorly on the official[s' performance] ... This therefore creates a collusive interest between donor and recipient bureaucracy to inflate the size of one project rather than to seek out more small projects." (Sobhan, 2007:127).

D. 'Machine politics', autocracy and weak government

Rahman *et al.* (2009) express concern that by banning rickshaws in Dhaka, the government is doing the same mistake of banning *becak* by Indonesian General Suharto. In fact, NMT bans are a common feature to several autocratic governments: General Ayub Khan- Karachi, General Ershad- first road ban for rickshaw in Dhaka, Field Marshal Sarit- Bangkok. One exception is the Manila, Philippines where the NMT ban occurred under a democratic government, immediately before Ferdinand Marcos, an autocrat came into power.

[85] Interviewed during fieldwork

Like many other similar countries, in Bangladesh, the military government left an enduring legacy of a 'technocratic political style' (Silva, 1995:200) partially replacing traditional bureaucracy with 'flexible'/short-term public workers, professionals as advisors, consultants which usually focuses on, as per Zunino (2006:1835), "political demobilisation and elite politics as the means to consolidate democracy". The low capacity of technical bodies (like DTCB) can also be explained by a 'part-time' technocracy. DTCB is usually run by bureaucrats deputed from central government administration not by full-time technical professionals (which is also a part of "bureaucratic politics"[86]). This results in a lack of effective leadership, and long term planning, monitoring and evaluation become dependent on external consultants. Baumgart (2010:53) also identifies an inappropriate institutional setup along with a dysfunctional statutory system and serious resource constraints as the causes of "inefficient urban management" in Dhaka.

Moreover, in Bangladesh "[c]lientele politics and networks between members of the current ruling party, either the Awami league (AL) or the Bangladesh Nationalist Party (BNP), are embedded in an extensive sphere of negotiations with unbalanced power relations" (Baumgart & Kreibich, 2011: 18-19). The structure of patron-client politics, known as 'machine-politics', has several extensive and pervasive forms: (i) horizontally the political party (particularly one in power) creates loyalists among the key actors in the state, para-state and other organisations through 'extra-organisational rewards and (ii) vertically the party spreads downwards to the loyal follower protecting them from harm/distress or providing benefits (jobs, license) (Islam, 2002:62-63). Indulgence to the corruption by the DMP/DCC people or overlooking the selling of 'license plate' by the rickshaw association leaders inclined to the ruling party attests the claim.

Patron-clientelism also makes leaders non-responsive or less pro-poor/people. Bari and Efroymson (2005b:22) shows how the victorious candidates betrayed his own pledge for freeing banned roads to rickshaws after his victory in parliament election. Again, during fieldwork it was revealed that the organisations of *rickshaw-walla, malik* usually had no/little allegiance to the party in power from 2001-2006, when the ban decision was implemented. Similar is the case in Delhi, where "the democratic electoral process forces

[86] From the interview of a DTCB official

politicians to listen to the lower middle class and the poor majority at election time. However, after the elections, and during policy making, politicians are dominated by upper-middle-class technocrats and experts with different concerns" (Thynell *et al.*, 2010:428)

Moreover, in a weaker democracy government does not 'quarrel' or negotiate with military, paramilitary or other organised forces. An official (See footnote 82) involved in the 2002 rickshaw ban process remembers: "*Buses plying on the NMT free road, as per negotiation, were withdrawn by the owners and their association and government could take no measure. Plus we repeatedly tried to find an opening though BDR*[87] *headquarters. But all in vain! BDR was not interested and government even ignored the whole NMT plan!*".

Besides, a centre-dependent local government, which fails to take local initiative for NMT, may also be another vested face of 'machine-politics' (World Bank, 2002:127).

E. Inland Business-Bureaucratic interest

The interests of government officials and businessmen come together on expensive infrastructure mega-projects, like metro rail or highways, making them politically easier to implement than even simple pavement improvements (Hook 2003:31). Hook and Replogle (1996:82) argued that the *becak* industry, which was controlled by very small entrepreneurs, was "not profitable to any of the President's relatives". Moreover, after the ban, the Jakarta City Council introduced motorised *tuk-tuk* (manufactured by the president's family firm) indicating 'presidential approval' to *becak ban*!

Similarly, in Dhaka the rickshaw business is confined to 'non-elites'. Gallagher (1992) and DasGupta (1981) classified people in the rickshaw business into: *rickshaw-wallas* (owning 1-2 rickshaws), mechanics (owning 3-7 rickshaws), garage owner-*malik* (owning 17+ rickshaws), investors (from local business, public/private service, having as many as 60 rickshaws). Interviews and focus group discussions (FGDs) with *rickshaw-malik* and *rickshaw-wallas*(Appendix E, FGDs) for this research suggest similar findings and categories, except that the number of rickshaws under *maliks* and investors is higher now;

[87] Para-military force mostly administered by army high-ups

the average range is 50-100. Besides, contemporary to rickshaw ban there was a ban on two-stroke auto-rickshaws resulting in the introduction of four-stroke auto-rickshaws whose license was exclusively given to the ruling party high-ups including associates of several ministers, a citizen activist (See foot note 73) informs.

F. Inland Business-Politics nexus

Pucher *et al.* (2005:196) identify the political influence of the automobile and highway lobbies as a formidable obstacle to improved transport policies in India. In Bangladesh a programme to privatise state assets was introduced in 1991 to reward and promote the interest of key entrepreneurs groups supporting successive Bangladesh regimes. Since the third parliamentary election in 1986 onwards the number of businessmen turned politicians increased to reach over 50% in Parliament (Monem, 2001).

"The ruling class and bureaucrats [are] therefore quick to ...[approve]... misguided policy directives without a scientific or logical basis" (Efroymson & Bari, 2005:4) and thus disregard the needs of the rickshaw industry. Despite liberalisation in Bangladesh, import duties on bicycles (170%) and its parts (also used for rickshaws) are higher than for motorcycles and reconditioned cars (Replogle, 1991:12). The statement, made two decades ago, is even true today.

G. United elites and middle class

"There is almost certainly a lack of interest by engineers... who favor ... more technically rewarding road and bridge design. Police often focus on the difficulties of enforcing NMT routes and the lack of respect of cyclists for traffic regulations. Similarly, the richer and more politically influential classes are likely to be car users and to have a vested interest in reducing the nuisance offered by slow-moving and congesting NMT" (World Bank, 2002b:127). Thus actors with a 'discriminatory mindset' (Efroymson & Bari, 2005:4) make an informal coalition in favour of the urban elite and middle class (Vasconcellos, 2001; Tiwari, 2001; Low & Banerjee-Guha, 2003) putting an "invisible hand" (Kreibich (2010) to ensure rickshaw ban decisions in Dhaka and elsewhere in Bangladesh. The same elite-middle class mindset appears when DTCB boss sweepingly terms all beneficiaries of the rickshaw trade as 'the criminal elements' with a call to 'target them' (Daily Star, 2003). The most recent example of elite discrimination against rickshaws and *rickshaw-wallas* is

found in Baridhara, Dhaka, a high class mixed land use area housing the diplomatic zone. The home owners and residents society of Baridhara have put restriction on the *lungi* (local male wear of the Bangladeshi people) clad rickshaw-wallas from entering the area (See Appendix D, News). In fact, this is a 'new politics' (Harris, 2006) by the middle class for "accessing urban services involving civil society, residents' association" (Hossain, 2013:79).

This explains, despite studies arguing for a separation of NMT and MT and for no numerical control of rickshaws (STP 2005b:17), why they are being banned. A retired professor[88] recalls, *"I have never seen in my professional life any individualised transport using decision-maker talking in favour of rickshaws"*. A journalist[89] boastfully describes how he compelled the Police Commissioner to ban rickshaws in the area he lived. Anjaria (2006) also reported similar application of state authority by Mumbai officials keeping street hawkers in a 'state of flux' by not mainstreaming them as stipulated in the legal and planning frameworks.

H. The politics of informality

Exploitation based on imbalanced power relations and structures (Banks, 2008; de Smedt, 2009) exist both in policy levels (discussed in the previous sub-section H of section 6.3) and in practice. Policemen or officials bend some rules in exchange for 'protection fees'. Often "operators have to rely on local mafia, or they themselves may be [so]" (Ratanawaraha, n.d.). The 'license/number plate' business with illegal rickshaws described earlier is a case to refer in this point as well.

Sometimes insiders instigate DMP/DCC for the ban. A veteran rickshaw garage owner - in the rickshaw business for the last 45 years - informed that one large rickshaw garage owner from Moghbazar, who was said to own 1,200 rickshaws, supported restrictions in his area to keep rickshaws from other parts of the city coming into his area; thus he wanted to have a monopoly in his business in Moghbazar area.

[88] Interviewed during fieldwork
[89] Interviewed during fieldwork

Usually DMP used to announce their plan earlier and they used to execute the ban on the first working day after any long public holiday such as the Eid vacation[90]. Now there is no announcement. *"One day I found one of the intersections in my daily travel route closed for rickshaws in the evening, which was open in the same day morning"* exclaimed a field survey respondent. Experts and citizen activist, interviewed, think that perhaps it is a strategy by DMP to keep the restriction officially unnoticeable and flexible. There is also subjective flexibility for certain users (students with ID card, guardians with school going children etc.) which has been found to be contemporary to a court case filed by a female advocate (Writ, 2011) on the ground of problems faced by her and her school-going child's mobility in absence of any other alternative mode. While giving their ruling, the High Court ordered DMP to provide a list of all such restricted intersections and to make footpaths free for pedestrian movement (Rule, 2012). An amicus curie[91] for these writs observed that the court understood the importance of rickshaws and their efficiency for the local context in Dhaka, but feared had they given any rule right now to lift the ban, the whole city would be flooded with rickshaws- mostly unlicensed - overnight. So the rule of the court may be considered as another example of "state facilitated informal practice" (Hossain, 2013:55).

I. Coalition and the blame game: shifting responsibility

Regime analysis accepts the presence of 'minor yet important' disagreement among coalition partners (see Handerson, 2004 and studies by Stone). Similarly, there are disagreements in the 'glocal' coalition against rickshaws. DCC limits its role to licensing and handling legal rickshaws and asks DMP to act against illegal ones. DMP says they are actually entitled to work only for motorised transport (as per the Motor Vehicles Act of 1962) and considers that the rickshaw issue is ultimately a land-use and transport planning failure for which it (DMP) blames RAJUK. Again, observation during field survey reveals a mixed tendency by the public to blame rickshaws and *rickshaw-wallas* for urban ills as well as highlighting its use in their daily mobilities. A professor and consultant to several transport projects (see footnote 79) sums this up: *"In Dhaka we do not have any hierarchy in urban roads and associated land-use controls. So rickshaw-wallas, for most of whom this is the first job in Dhaka, suddenly and directly drift into a major thoroughfare from a local/neighbourhood road. This makes road users, other than the passengers and*

[90] Interview of *rickshaw-wallas* and experts
[91] Interviewed during fieldwork

rickshaw-wallas of the particular rickshaws, disturbed and annoyed. Often, they become easy targets to air the wrath of traffic police who ultimately find rickshaws at hand to ventilate their wrath in the road where almost no one follows traffic rules".

Besides, blame game exists between government and donors. The implementation completion report on DUTP (World Bank, 2005:19) blamed the design of the project for not providing a safety net for people affected and the government for delayed decisions on a mitigation package, and termed the impact assessment study as "not of high quality". But, it was the World Bank who "originally supported this plan" (Hummel, 2008) and "expressed dissatisfaction at the limited progress of the rickshaw-ban programme along with other plans" just before the mass/2nd phase ban was supposed to start (Daily Star, 2004). So, donors should also bear responsibility for the public misery and failure of the rickshaw ban project.

J. 'Day-to-day planning' and the 'tyranny of small decisions'

Nilsson (2007) introduced the term "day-to-day planning" referring to the tendency to formulate plans for future establishments as the need and case arise, rather than following a coordinated strategy. "The actual planning process therefore often begins after the important political decisions regarding the practical configuration of the project have been made, with the result that day-to-day planning comes to bear a strong resemblance to incrementalism ... tends to create a disconnect between individual planning projects and long-term plans, then decision-making and planning practice can forge ahead, unaffected by lofty environmental rhetoric." (Hrelja, 2011:513). However, such 'tyranny of small decisions' (Odum, 1982) is seldom problematised although the decisions are not objective, neutral and interest free (Hrelja, 2011). In fact, according to Nilsson (2007), growth-related planning issues are often handled in 'day-to-day planning', since it can deal with them quickly as they arise, creating a flexibility and freedom of action for planners that allows them to accommodate the wishes of other actors, such as members of the business community.

The management of rickshaws in Dhaka including bans and restrictions is the best example of 'day-to-day planning' and 'tyranny of small decisions'; where DCC plans to withdraw them from several roads, Bangladesh Road Transport Corporation (BRTC) -

operating government public buses, and Bangladesh Road Transport Authority (BRTA) - fixing bus routes (in association with other agencies and stakeholders), do not ensure adequate number of public buses and bus routes to provide alternatives. DTCB, which led the NMT withdrawal operation from 2002-2005, now makes NMT lanes in roads once it has got fund for the Clean Air and Sustainable Environment (CASE) project. But meanwhile, DMP has banned rickshaws in those roads (where DTCB has made rickshaw lanes), to ease the flow of (motor) traffic. As DMP sees rickshaws as the trouble makers, it is its own departmental decision to control rickshaw for the sake of MTs under the aegis of the Motor vehicle Act, 1962.

However, 'muddling' (Lindblom, 1979) through these actions ultimately results 'circularity' or 'controlled volitions' (Lindblom, 1977) i.e. people are persuaded to demand only what goes in favour of beneficiaries of auto-mobility. The worst consequence of such actions ultimately makes alternative options for urban mobilities limited, if not seized.

6.4 Conclusion

This chapter has discussed the dynamics of ban/restriction of rickshaws in Dhaka seeing it as part of a global trend against NMTs in urban areas. The *politics of (im)mobility* works through a coalition of global and local actors grouped together informally with varied interests - small-big, administrative-business, political-personal, bureaucratic-technocratic, etc. The potential to extract some benefits, despite occasional differences, make them work together- knowingly or unknowingly. However, the ban is part of a blue-print for a car-based transport system and land-use development, as well as to help secure a place for national and international capital in creating costly transport infrastructure.

Chapter 7

Unjust mobilities in Dhaka - conclusions

7.1 Introduction

This chapter sums up the whole dissertation with respect to the objectives of the research and advances the research conclusions on the nature of *mobilities* in Dhaka. Taking cues from the findings of the field work in the three study areas it explores whether the urban *mobilities* in Dhaka is just or not and how. It also sheds light on the planning and policy implications of the findings of the research. Finally, it concludes with suggestions for further research with respect to just *mobilities*, particularly for planning NMT based *mobilities* in cities of developing countries.

This chapter summarises the dissertation towards research conclusions (on *mobilities* in Dhaka). With reference to the empirical findings presented in the earlier chapters it outlines the facts on *distribution*, *process* and *politics*- that condition justice - in urban *mobilities* in Dhaka. It continues presenting the contribution of this research for planning and policy considerations. This chapter then closes indicating scopes for further research on *mobilities*, particularly on planning NMT based *mobilities* in cities of the developing countries.

7.2 Unjust *mobilities* - research objectives revisited

This section reminds the objectives of the research and briefly discusses the relevant outcomes. As part of the first objective a *just mobilities* framework has been developed which has been applied latter in the research to understand the distributional effects of rickshaw bans and restrictions in Dhaka - second objective, and to understand the process and politics associated with the interventions - third objective.

7.2.1. Development and application of a just mobilities framework

In the backdrop of multidisciplinary interests and dialogues regarding (social) justice, it has been understood that any framework involving it should encompass, at least, three aspects: *distributional* (outcomes), *process*ual (studies, methods, decision making process) and *political* (motivational basis for particular decisions made). This research also seeks to reconcile the old debate of mobility versus accessibility and to address the weakness of sustainability approaches in transport and mobility. It is convinced that mobility is a

product of a complex process intrinsically guided by subjective interests of decision makers or potential beneficiaries - direct or indirect. In fact, a broader definition of mobility points out that destination, distance, frequency, time and speed of revealed mobility, and the possibility of *potential* mobility (to become a reality) depend on underlying processes and the motivations behind the processes. The *process* and politics involved in the planning of mobility and consequent distribution of outcomes are so varied, multidimensional, complex and involve so many stakeholders that mobility is best understood as *mobilities*, following the 'new mobilities paradigm'. Consequently, the research also conceives urban mobility as urban *mobilities* given the multiplicity of citizens on the move, diversity of decision-makers and recipients of the externalities of the *mobilities*.

This understanding of justice and *mobilities* leads to a *just mobilities* framework. The framework that involves *distribution*, *process* and *politics* associated with *access*, *competence* and *appropriation* of *mobilities.* Thus it paves way for further dialogue between technical and sociological studies of *mobilities* and transport and accordingly contributes to the discussion of social sustainability, which is less appreciated compared to environmental sustainability and economic efficiency in the sustainability literature. While doing so, it also advances the concept of sustainable mobility and transport towards further perfection by redressing the developed country bias in its contemporary conceptualisation. The three dimensional framework of *just mobilities* also seeks to identify and understand global to local ('glocal') forces and stakeholders forcing and formulating the *process* of planning *mobilities* at national and local (urban) levels and distribution of *mobilities* (an outcomes of the *process*) at local (urban, community, neighbourhood, household or even individual) levels.

7.2.2 Uncovering the distributional effects of rickshaw bans/restrictions on the mobilities

The research has sought to assess the *distributional* effects of rickshaw bans and restrictions in Dhaka. Based on stratified spatial sampling three study areas along the major roads of Dhaka were selected: Shyamoli, Shukrabad and Bijoynogar. First two areas were along the Mirpur road, where rickshaws were banned first, in 2002, as per Dhaka Urban Transport Plan (DUTP) and the last area was a recent rickshaw-restricted area where rickshaws were banned from crossing particular intersections. In all three areas

there are one or two rickshaw banned minor road sections as well. All these areas are mainly middle class areas in Dhaka with 30% of households owning private cars; there is no slum in the surveyed portion of the study area. Mixed land uses have developed in the three areas with mostly commercial and institutional uses along the major roads. The assessment of distributional effects of rickshaw ban/restriction is based on the questionnaire survey of households in the randomly selected residential units in the study areas. Apart from questionnaire survey, focus group discussions (FGDs), open-ended and semi-structure interviews were also conducted.

The study found that, women, senior citizens, school goers, young parents having children are among the most affected losers due to the rickshaw ban/restriction decision. Some activities like 'carrying children to school', 'to tuition', doing 'shopping', 'visiting family, friends' and 'escorting ill/aged members to hospital' are mainly done by female members of the households. These activities, in many cases, require short trips (less than 2 km in length) to be made by rickshaws and are hence seriously affected by bans and restrictions. However, rickshaw banned/restricted roads/intersections also impact on the household members' 'work' trips which represent 41% of all *time-bound (regular)* activities, defined as activities which are done regularly (four/five days a week) at the same time of the day. But, in many cases work trips are comparatively longer for which rickshaws are less suitable and other modal options are more easily available. Plus car-owning households, or officials using official cars mainly use cars for this purpose. So, they feel less effects of the bans with respect to the effects felt by other activity makers. With respect to age, one fourth of members in the households are children and senior citizens and are hence mobility dependent in the context of Dhaka. Their activities and associated *mobilities* are adversely affected due to bans and restrictions on rickshaws. In such a context of *mobilities* in Dhaka, 12% of the surveyed households are forced to buy cars in this condition of *mobilities* while some have made contact arrangements with drivers of CNG, and school vans and with *rickshaw-wallas* to avoid hassle while doing some essential *time-bound (regular)* activities like going to school or office. (Thus withdrawal of restrictions on rickshaws have been proved to be one of the causes of increased motorisation in Dhaka.) But other members who do not have access to a car or for whom 'contact arrangements' are not made cannot avoid the problems created due to the intervention on movement of rickshaws.

However, despite different efforts to withdraw NMT, the popularity of rickshaws in Dhaka is indisputable. Respondents' preference for rickshaws for short trips (below 2 km) is highest among all modes; for medium trips (between 2 to 5 km) car is most preferred followed by rickshaws. However, when respondents are asked to rate their preference for different modes on the whole (irrespective of activities and distance travelled) rickshaws get second highest preference under current condition and the highest preference in the hypothetical situation of bans being lifted.

7.2.3 Understanding the process and the politics of rickshaw bans/restrictions

Attempt to remove rickshaws from major roads of Dhaka is not a new phenomenon. What is new is how dominant knowledge on transportation studies that promotes anti-NMT modes and ideas are applied in the justification of the attempts. Important here is to understand how, behind the scientific discourse, the justification is negotiated in a power game participated by the Planning Commission of Bangladesh, Dhaka Transport Coordination Board (DTCB), Dhaka City Corporation (DCC), Dhaka Metropolitan Police (DMP), RAJUK (Capital Development Authority) and the consultants' team(s) dominated by foreign experts, and overseas (financial/donor) institutions.

Despite several incidences of bans on rickshaws and related authoritative decisions, operation of rickshaws could not be stopped completely from major (and some other minor) roads. In fact, decisions to ban or restrict rickshaws resulted from an ‘expert’ based 'one size fit all' solution that is biased towards 'elite', car users in the community and till date continues to overlook the importance of public participation in planning and decision making in the city. Therefore there were protests from civil society, users and *rickshaw-wallas*. In fact, in many cases protests resulted in a sort of popular 'insurgence' and reluctance to follow the ban decisions. Yet plan making bodies, government, donors, entrepreneurs, field level officials and others concerned are not reluctant to take or invest in similar efforts.

The research has shown that multiple actors with diverse and shared interests have formed a 'glocal' (global plus local) alliance against rickshaws, its users and drivers. On one side of the alliance is the politics of auto-based infrastructural investments and development planning that, for their large and capital intensive nature and thus scale benefits, are

attractive to the government, government bureaucracy, professional experts and the financing organisations. On the other hand, donors are more interested to invest in larger projects than in a number of smaller ones. Large project means investment under less administrative costs for financial institutions, business opportunity for foreign companies. Such projects also indicate government success and thus political benefits for the ruling political party, create opportunities to sell expertise for professionals, and earning opportunities in the administrative process for the government bureaucrats. The modernist nature of these large projects banning rickshaws also gets supports from urban elites and middle-class groups who treat rickshaws as a symbol of backwardness and underdevelopment.

On the other side of the alliance there is the politics of informality in the form of illegality, extra-legality, corruption/rewards, collusive coalition-building, patron-client based 'machine politics', biased knowledge production/application by consultants/experts and implementing agencies, the 'day-to-day' nature of planning. The research argues that an alliance of autocrats and technocrats in the context of weak democracy is a breeding ground for informal politics.

7.3 *Unjust mobilities* due to rickshaw bans and restrictions

The *just mobilities* framework developed in this research does not limit *mobilities* in the existence or absence of a fair and equitable distribution (horizontally and vertically) of mobility outcomes - burdens and advantages. Rather, *just mobilities* is considered here as a fair and merit based *distribution* of opportunities and options for *mobilities* and conceives them (opportunities and options for *mobilities)* as products of a fair *process* involving fair *politics*. (It is aware that only *procedural fairness* does not create just *distribution* unless motifs are responsive to needs, rights and merits). So, anything otherwise in *distribution*, *process* and *politics* would be indicative of *unjust mobilities*. From this point of view, this section shows how the ten key concepts of justice- procedural fairness, fulfilment of legitimate expectations, formal equality, substantive equality, basic rights, need as demand and wider need, liberty rights and claim rights, and finally deserts (Hay & Trinder, 1991; Trinder *et al.,* 1991) are overlooked in planning *mobilities* in Dhaka resulting into different types of injustice. It is found that at least four faces of injustice, among the five - exploitation, marginalisation, powerlessness, cultural

imperialism and violence, identified by Young (1990) exist in post-rickshaw-ban/restriction Dhaka.

The research has focused on the residential areas. As regards distribution of mobility outcomes after bans/restrictions, it has been found that the decisions affected everyone regardless of their socio-economic conditions, however unequally, raising a concern from the perspective of 'formal/horizontal equity'. Moreover, in the context of special mobility needs and problems of particular groups of people, positive discrimination could be done to ensure 'substantive equity'; but what was done was reverse. Women's activities are severely disturbed and they are the most affected group of the rickshaw ban. Whereas mobility dependent people (children and senior citizens) should also be the concern of any transport planning intervention, the decisions of bans and restrictions seem to be concerned mainly with *time-bound (regular)* activities, like 'going to work', by working and adult people. Long distant motorised trips are the exclusive policy concerns; methodology, models and their application are also biased. These decisions are based on a discourse that links non-motorised transport (NMT) with the 'troubles' and 'congestion' and motorised transport (MT) as faster and symbol of development.

Promotion of MTs on the road however has been creating a serious disturbance/hindrance to the short distance trips on which the daily life depends, like 'going to school/study', 'carrying children to school/tuition', 'kitchen and other daily shopping', 'accessing community facilities, visiting family, relatives and friends'. On the other hand car and motor vehicle based long distance trips have benefitted. Since women and mobility dependent people use rickshaws extensively, in the absence of adequate and effective public transport that cares for them, they are most unfairly burdened. It can also be said that the decisions are taken keeping in mind the existing *mobilities* alone. But *potential* or suppressed activities requiring movement have not been considered, let alone encouraged. This ultimately benefits those who have personalised vehicles (private or official cars), or can afford to meet the demand for the high, which is in most cases 'unreasonable', fare by opportunist *rickshaw-wallas* and drivers of taxis, CNG three wheelers. Such biased *distribution* of benefits and burdens is in no way compatible to principles of justice like 'deserts' and 'needs' (Hay & Trinder, 1991 and Trinder *et al.,* 1991).

The process of rickshaw bans and restrictions hardly pass the filter of 'processual justice' (Rawls, 1971) or 'procedural fairness' (Hay & Trinder, 1991 and Trinder *et al.,* 1991). It has been stated in chapter six (section 6.2) that since 2002 the withdrawal of rickshaws are done under the aegis of different scientific studies, strategies and plans by Dhaka City Corporation (DCC) and Dhaka Transport Coordination Board (DTCB). The very objective of these background works are questioned as their motif was to enhance motorised mobility and ensuring 'congestion free' roads. Better management and integration (with other modes) of rickshaw, which is by far the largest mode of transport both in terms of number and people carried, were not even in the policy and planning agenda. Moreover, the way conclusions are drawn based on biased modelling tools and cost-benefit analysis are increasingly being questioned for their inability to do justice to pedestrian and non-motorised traffic including rickshaws. With regards to the authority of decision making, it is seen that decisions and plans do come from different agencies and until recently there was no authority in Dhaka to look into transport planning. Interestingly, when the question for implementation is addressed, Dhaka Metropolitan Police (DMP) becomes the main role player making planning a policing activity. Even, the newly formed transport authority- DTCB, is by-passed by the police department which often bans and restricts rickshaws at their will (as and when found necessary according to their own judgement). Therefore, now many new roads or road sections or intersections, outside the 2002 plan, are rickshaw free, while several major roads, as per the plan, are not. Thus not only the 'liberty right' of free movement is ignored, 'claim right' of the people from the government to ensure *just mobility* has been denied. Moreover, participation of different categories (based on sex, age, activity type etc.) of rickshaw users is never ensured in such plans and decision making processes. So, the 'needs' and 'expectations' of the rickshaw users and their households are not addressed. Rather a top-down approach is followed.

Finally, the *politics* in this sort of planning decision in one way resembles a face of injustice - 'cultural imperialism' (Young, 1990), by trying to evict so called 'slow, eye-soring, old-fashioned' rickshaws, the most popular transport mode in many Dhaka roads. On the other hand the politics also disregards the need, sometimes as if even the existence, of rickshaws, its users and other stakeholders reminding what Young (1990) calls 'exploitation' of one class by the other. As it has already been stated that the rickshaws are banned not only for the sake of banning them, rather this is a part of a blue print to make a

car-based urban transport system and thus to ensure a motor friendly investment climate. Role players - from local, national and global arena - do not necessarily have the same interest, but the outcome i.e. rickshaw free roads, give a common platform to realise their own interests. Weak democracy, corruption, lack of transparency make the platform stronger. The elite and middle class mindset against rickshaws and 'love affair' with 'West-like modernisation' keep the idea and effort fresh and vibrant. The whole process and outcomes of rickshaw bans/restrictions results in 'marginalisation' (Young, 1990) of the 'powerless' (*ibid*) rickshaw users and other stakeholders. Thus at least four of five faces of injustice, as espoused by Young (1990)- 'exploitation', 'marginalisation', 'powerlessness', 'cultural imperialism' and 'violence'- exist in Dhaka as far as rickshaw ban/restriction is concerned.

7.4 Implications for planning urban transport

Hickman, *et al.* (2011) urge for a 'change in course of urban transport planning' in rapidly urbanising Asian cities by developing mass transit systems, encouraging NMTs, better land use transport coordination instead of construction and supply based transport solutions. In the backdrop of *unjust mobilities* in Dhaka, as reported in the previous section, this section suggests what could be done, as far as planning is concerned. A few relevant policy suggestions based on the findings of the research are put forward.

7.4.1 Implications based on distributional aspects of just mobilities

The repeated incidences of bans and restrictions of rickshaws show that transport planning decisions in Dhaka are taken keeping in mind the following things: long distance trips - mainly work activities/trips, activities involving *existing mobilities,* mainly male, young and active population as the mode and road users and finally motorised mobility as a fundamental and inherent objective. In fact, this not only the case for Dhaka, but true for many other cities. It is now widely acknowledged that transport policies are gender biased (Anand & Tiwari, 2006), and there is an urgent need to recognise mobility needs based on particular transportation users (like women, children, girls and boys, senior citizens) by traffic planners and policy-makers along with the traditional men and youth centred design of mobility (Zauke & Spitzner, 1997). Recent transport planning literature, which has emerged in several developed countries and which is informed by gender methods, highlights the gap between the specific needs of women and transport planning (World Bank, 1999). But models are also still unable to understand women's special mobility

needs/factors like security (Root *et al*, 2000). Therefore, from a just and fair *distributional* perspective of *just mobilities* framework, at least the mindset guiding the planning *process* must be changed in the very beginning and hence the *process* should be intervened accordingly.

Even if, NMTs should be essentially withdrawn from or segregated in some roads, alternative modal options for the NMT users and alternative routes for the diverted NMTs must be planned, effectively implemented and monitored. Plus the vacuum created must be filled by public transport, not cars. i.e. NMT withdrawal should not be a subsidy for private cars. (Unfortunately, it has happened in Dhaka). Since short distance trips and activities are among the most affected due to the ban/restriction, and rickshaws are most suitable for these trips in the dense, unplanned land use development in Dhaka, integrating NMT/rickshaws is a must with the mass/public transport.

Besides, there must be options/infusions for positive discrimination to facilitate the *mobilities* of the women and mobility dependant population- children, diseased and elderly persons. Similarly, if and when possible beneficiaries (user) and recipients of externalities (other stakeholders or land uses) can be fairly charged to ensure just distribution of burdens and benefits.

7.4.2 Implications based on processual aspects of just mobilities

There is an urgent need to rethink regarding the current process of urban transport planning. The whole process of discrimination and indulging bias or particular interest should be reviewed, if not (radically) discarded. The first thing to be stressed is the need for development and application of the tools and methodologies to reflect the importance and extensive use of rickshaws in particular, NMT (including pedestrian) in general. Modeling used to forecast transport scenarios and to make modal alternatives must be NMT and gender sensitive. People involved in planning and decision making must also be trained and educated to avoid any prejudice against NMT and do fair judgement towards rickshaws. Besides, effective public participation and informed stakeholder analysis must be done while formulating transport plans to filter any vested motif in the decision and plan and to judge the *needs* and *expectations*, two principles of justice, of users and other stakeholders.

7.4.3 Implications based on aspects related to politics of (im)mobilities

All the suggestions made above regarding *process* of planning and decision making are relevant in this section as well. Plus governance of mobility related decisions can be suggested (Akhter & Grane, 2012); careful balance is required among social equity, economic efficiency and environmental sustainability. Besides, project identification should be independent - neither donor driven nor investment/business driven, and careful to avoid conflict of interests. Options should be there to listen to and consider the marginal and user voices in identifying their requirement. Project planning and implementation should be evaluated and monitored. A more transparent form of governance, a stronger and more imaginative local government (Dávila, 2009), a more highly qualified bureaucracy and a better informed public could conceivably turn the pro-growth investment into a pro-people movement and ensure competition in urban transport market while preventing what Replogle (1991:13) termed "monopoly and oligopoly of particular modes and service providers".

Finally, the government, concerned authorities, experts and consultants must be aware of the weakness and failure of the supply oriented 'predict and provide' type solution to problems in *mobilities*. Rather transport demand management, utilisation of existing resources including rickshaw - a green and local mode, and rickshaw based mobility as a culture must be prioritised in planning urban transport. In fact, "[i]t is becoming increasingly important to think about longer term possibilities and directions that are trend breaking and can help anticipate the unexpected" (Banister & Hickman, 2012:1).

7.4.4 Policy implications for planning transport in Dhaka

The case study has clearly shown that transport planning process in Dhaka is discriminatory, biased, lacks adequate mechanism to check infiltration of business only motifs or 'elite' interest, to hear the marginal and user voices. It is not responsive to the need of women, children, aged and ill persons, short or medium distance trip makers and non-car owning households (see figure 5.6) nor even to school-goers or participants into training/educational programmes (see section 5.5.2). So, it is an imperative for transport policies and programmes that their focus should be readjusted, if not changed. Again, anti-NMT policies are also causing forced car ownership- 12% in the study areas (see section 5.5.1). But NMT based and user-responsive transport policy making is not an independent

and separate agendum. Increased motorisation, particularly increased car ownership is also a matter of concern as far as environmental sustainability, fossil fuel supply, foreign currency reserves[92] etc are considered. So, rickshaw friendliness in urban transport polices for Dhaka can also be contextualised with the greater sustainability concerns.

Moreover, currently in Dhaka neither the transport planning, management and implementation activities nor the involved authorities are organised and integrated. Too many agencies and authorities are currently involved: Planning commission, DCC, DTCB, DMP, BRTA, BRTC, LGED, RAJUK, DoE, BGB, even Bangladesh Army and so on. Organograms and relevant horizontal and vertical linkages of some of these the agencies (see Appendix H, Organogram) show that they are liable to different ministries with little scope or need for lateral or horizontal talks regarding issues of mutual concern. Therefore sometimes they even work completely against others' plans or decisions (see foot note 80 and relevant discussion). Apart from improvement of capacity (in terms of ability for both planning/engineering and sociological analysis) of the technical and other bodies and efficient leadership (by right persons, not merely a bureaucrat) of these bodies, effective mechanism for integration of their policies and coordination of their activities should be ensured.

Apart from urging for an increased importance of rickshaws, or NMT in general, in urban transport policies, the case study has also reiterated the need for home grown, context specific transport policies for Dhaka. It has shown that rickshaw is the prime mover of the citizens, car ownership is extremely low compared to other countries, land use development is unplanned and many people living in abject hardship to spend at all for mobility. So, 'fit-to-all' policies and suggestions transported by donors like the World Bank, JICA etc. should not be accepted only because it involves injection of a large amount of foreign currency in the economy (see foot note 85). Rather conventional 'expert' led 'technical' and 'financial' viability studies must include measures to reflect the (general and special) needs, affordability of the users and other stakeholders. The cost-benefit analysis must include the cost of demise of NMT and rise of MT. The pros and cons including political or business motivation should be examined and widely discussed with relevant stakeholders and multiple professionals (not only engineers) to identify the

[92] Bangladesh is 100% import dependent for petrol, diesel and octane.

unseen and unraised issues by single professionals/stakeholders and to address the inertia developed in the traditional mobility solutions prescribed by biased donors or 'prejudiced' 'experts'. In brief and general it can be said the planning, including transport planning, in Dhaka needs a fundamental, if nor radical, transformation; objective and target (groups) of the project/intervention, project planning and management, implementing and investment authority and capacity, methodology and tools for background studies, through appraisal of benefits and burdens - social, economic, environmental etc should be matters of concern.

7.5 Revisiting the contribution of the research to understanding and knowledge

The research would be of use directly to the disciplines like urban planning, transport planning social science, law, urban politics, geography, public policy and sustainability studies and indirectly to transport engineering, gender studies, political science, transport project management. As far as replicability is concerned, it should be useful in the context of cities where NMT is a significant part of modal fleet- Asian and other developed country cities; or where NMT is sought to be encouraged, cities in the global north.

The *new mobilities* paradigm has enormously broadened the scope of *mobilities* research resulting in a '*mobilities* turn' in social science, particularly in sociology. However, the initiative to translate the concept to other disciplines with applicable indicators is overdue. When the question of assessing the worthiness of an intervention having implications on mobility arises, this research sought to make a contribution from an applied socio-spatial discipline like planning, geography, public policy. This research draws on disciplines like sociology and planning by converting the sociological concept of *mobilities* into a potential concern for planning urban mobility. Again, by amalgamating concepts of justice with *mobilities*, the scope for interaction among sociology, political science, law, public policy, gender studies is created.

"[U]rban geography (of the past three decades) must rank as one of the few social science disciplines that has failed to investigate actively the relevance of liberal theories of social justice as a guide to urban policy and planning practice … [There] has been total lack of interest in developing accounts of social justice grounded in empirical understandings thereof … [I]f geographers and urban planners [are] engaged in the development of an empirically based understanding of social justice, very different social justice frameworks

would be suggested as guidelines to planning practice, since what 'ordinary urban citizens', particularly in terms of the case study reviewed …, deem to be socially just, challenges the post-structuralist/structuralist debates in geographical social justice discourse" (Visser, 2001:1675). Fredericks (2011) also expresses similar concern regarding absence of any direct or indirect policies for environmental justice accompanied by sufficient indexes, methods of monitoring. So, it is expected that the development and application of just *mobilities* framework would be useful to contribute with empirical evidence towards better understanding of social justice in the specific context of urban transport and land use (planning and management).

Moreover, apart from a return of a social justice wave in the geography and urban studies literature (Harvey 1996, Smith 1994a), reservations against banning the non-motorised transport (NMT) and fuel free transport (FFT) in developing countries and a concern for 'walkable and livable' communities, particularly in developed countries, are growing. Therefore, it is worth examining mobility due to withdrawal of NMT from Dhaka roads from an angle of social justice.

Furthermore, "[g]lobal cities research has taken a political turn. Researchers not only look at the causes and patterns of urban inequalities but they also show a growing interest in explaining how … inequalities are politically managed" (Kanai, 2010:1887). But the subtle relationship between transport and social exclusion (Barry, 1998; Pacione, 1995) could not be fully appreciated (Church *et. al.*, 1999) and measured (Hine and Mitchell, 2001). These efforts could not go further than stating the unjust outcomes of transport project and policy implementations as facts and have not proposed a robust, comprehensive analysis and assessment tool for the projects (Beyazit, 2011). This is partly due to the dominance of the current evaluation and appraisal methods such as Cost–Benefit Analysis (CBA) which in turn forces transport investments to move away from a socially just picture (Beyazit, 2011). This study seeks to make a contribution towards the development of the link between justice and mobility with reference to the associated politics behind them.

Finally, a general yet very strong message of this research is that transport policies and interventions should be context specific; there is no universal formula to solve urban transport problems. Like many other studies in the fields of development, the case study of this research has shown the impact of choosing a 'wrong' transport policy with an

intention- implicit or explicit, of' 'modernisation'. It draws our attention to the fact that Western solutions to transport planning – that now seem very outdated in a growing number of progressive Western cities including Amsterdam, Copenhagen etc.; refused or bi-passed in the visionary developing cities like Curitiba, Bogota etc – should not be implemented blindly in Asian cities such as Dhaka and in other rapidly growing developing cities. Neither the donor agencies nor the governments of the host countries should get involved into investment hungry and construction friendly projects only 'because money is there' or could be there.

7.6 Direction for further research

Further research is needed to examine the responses of communities and citizens to such top-down intervention, gauge the socio-economic and environmental losses arising from rickshaw ban/restriction as well as its impact on land-use and housing. The impact of rickshaw bans and restrictions on particular activities like 'going to school', 'going for shopping' and so on can be investigated further. Based on the *just mobilities* framework developed in this research, measuring and quantifying the level of injustice is an immediate next task; the framework may also require further adjustment and refinement in this regard. How to segregate motorised and non-motorised transport in major roads, how to locate rickshaw stands in those roads so that public transport and rickshaws can complement each other should be potential research agenda. As mentioned earlier development of an inclusive, NMT and gender sensitive methodologies, tools and modelling techniques needs more contributive research. This is unfortunate that Bangladesh, being a country of NMT and in the context of growing positive concerns for such green modes, does not have a NMT law nor an NMT policy. Therefore research on the adoption of a NMT policy and a more progressive and integrated transport policy that recognises the role of rickshaws in the transport system and mobility condition in Dhaka can be essential contributions. In general it can be said that as there is a growing concern over the use of the Western solutions to transport planning, in Asian cities such as Dhaka, there needs to be a much stronger appreciation of context, and researches should seek to develop transport strategies in relation to this.

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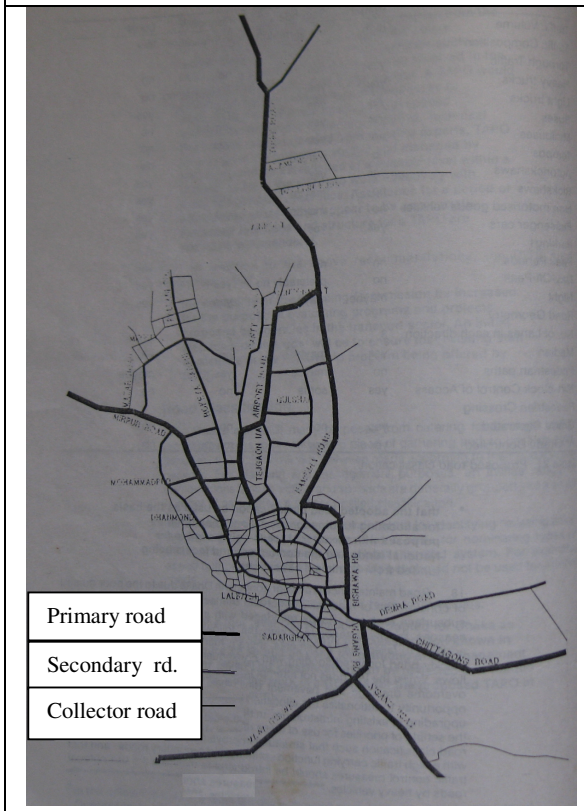
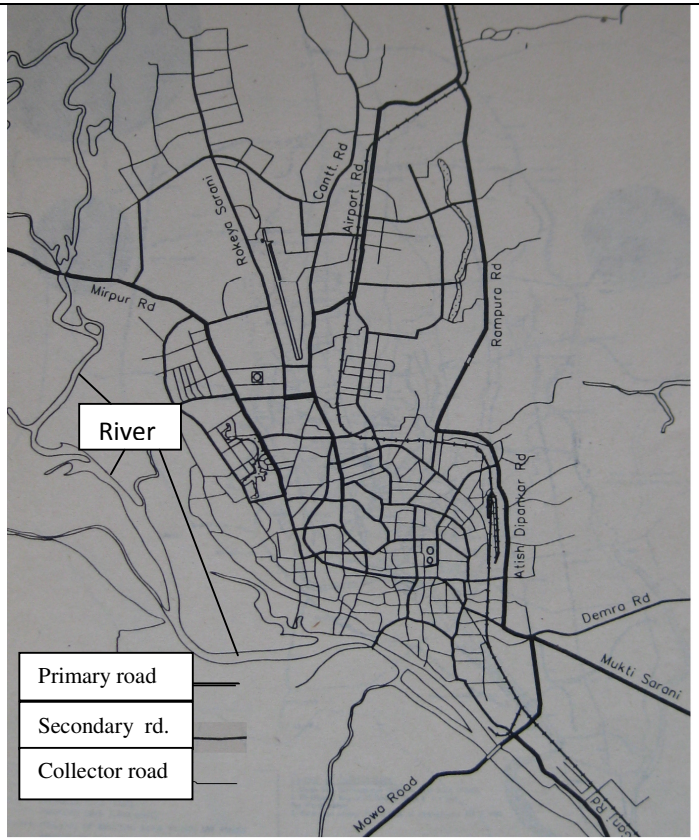
Appendices

Appendix A .

Map A.1: Major road network in DCC area	Map A.2 : Road network in DCC area
	
Source: DITS, 1994a: 98 *Local roads are not shown	Source: DUTP (1998) *Local roads are not shown

Appendix B

Id no:

Questionnaire for Household survey

For the PhD research in University College London on ***Urban Transport and Land Use and Non-MotorisedVehicles (NMVs) in Dhaka***. The survey will try to understand the importance and use of NMVs, particularly rickshaws in your mobility and travel behavior. All the data collected will be used for academic purpose and be kept safe and will remain secret.

For details please look at http://www.bartlett.ucl.ac.uk/dpu/people/students/phd-profiles/musleh-u-hasanher is available at musleh9602@yahoo.com or 01819-273409 or can be contacted at the **Department of Urban and Regional Planning, BUET, Dhaka**, Ph. 02-9665650-56 8614640-44 (PABX), 7486 (Ext)

Now if you allow we would like to ask some questions for the next half an hour for information regarding basic socio economic and housing aspects, mobility and activity pattern of you and your household (HH) members.

1.Housing information

Storey in which you reside		Size of housing unit (sft)		length of stay (yr)		Tenure type				If tenant, rent	
						Owner		Tenant			

2. Household information

	Relation with HH head	Sex (M /F)	Age	Highest level of Education achieved	Occupation / Profession	Any health condition/ disease affecting travelling (specify)	HH income/ month
1 Respondent							
2							
3							
4							
5							
6							
7							
8							

Education level: i-illiterate, p-Primary, s-Secondary, hs-Higher secondary, t-tertiary/univ., h-Above tertiary

3. Information about car use

Car ownership: Y N	If yes, Since when?								
Please weight the importance of the following factors in a scale of 5 as cause for your car ownership (multiple factors may get same weight)									
Afford-able Price		Provision of bank/ office loan		Unavailabi -lity of transport		Problems created by rickshaw ban		Particular requirement (Specify) …….	
Despite having car(s) do you or your household member(s) generally face problem(s) during mobility based activities? Y/ N									
If yes, is the experience related to direct/indirect consequences of Rickshaw ban? Y/ N									
If no, in the experience related to direct/indirect consequences of Rickshaw ban? Y/ N									

Weight: Very Important (5), Important (4), Less Important (3), Unimportant (2), Not Important at all (1)

4. Comparing different modes

4a.Please weight (in a scale of 5) the factors as considerations while choosing a mode for you or your HH

Factors related to user		**Factors related to Service of the mode**				**Other factors/network or system related**	
Gender		Fare per trip		Info. on departure, stop/ parking, fare, service		Integration with Connecting or next mode/ transport	
Age		Journey Time		Availability of the mode at the times when needed		Traffic condition/ congestion of the road where mode plies	
Number of accompanying riders		Waiting time		Frequency of mode		Better road surface condition of the road where mode plies	
Health condition		Door-door service		Reliability of service		Security from crime/harassment	
Weight/volume of luggage		Safety from injury/accident		Overall comfort		Distance	
		Fare negotiation/ arrangement		Operator/ driver behavior			

Weight: Very Important (5), Important (4), Less Important (3), Unimportant (2), Not Important at all (1)

4b. Please rate (in a scale of 5) the usability of the modes to you with respect to distance travelled.

(Multiple factors may get same weight)

Distance	Walk	Rickshaw	CNG	Bus	Car	Paratransit
Short (<2km)						
Medium (3-5km)						
Long (>5km)						

Applicability: Very High (5), High (4), Moderate (3), Low (2), Not at all (1)

5. Pros and cons of your and HH members' trip under Rickshaw ban and no ban conditions

5a. Brief on activity and trip pattern in the last month

No	Activity type (please specify the types from list below the table)	Presence of any Rick ban corridor/ spot	
		Yes	No
1 Resp.	Time-bound (Regular)-R*		
	Time-flexible(Other)-O*		
2	R-		
	O-		
3	R-		
	O-		
4	R-		
	O-		
5	R-		
	O-		
6	R-		
	O-		
7	R-		
	O-		
8	R-		
	O-		

**Time-bound (regular) activities are done at specifi time. Time-flexible (other) activities are also very common, but not done exactly at the same time.*

Activity type: 1-Work, 2-Going to provide tuition, 3- School/Study 4-Carrying children to school, 5-Carrying children to tuition 6-Daily Shopping, 7-Other non-daily shopping, 8-Going hospital/clinic 9-Visiting family & friends, 10-Eating out (café, rest.), 11-Sports and Gym 12-Recreation(park, cinema/music), 13-Service (post office, bank, salon etc) 14-Socialising/*Adda* *IF ANY OTHER (specify)*

5b. Does any of your HH member take advantage of no ban time in the morning/evening for any trip? Y/ N
If yes, why …….....

……....……

If no, why …….....

…….....……

6. Impact of rickshaw ban

6a. Have your HH experienced the following changes due to rickshaw ban? (put √ if applicable)

Factors related to					**Comment**
Car/driver	Forced car ownership (FCO)		Forced driver employment		
	Forced driving learning				
Other mode use	Forced public bus ridership		Forced walking		
	Forced Contact rick. arrangement		Forced contact CNG arrangement		
Journey	Break of journey increased				
Fare	Increase in rickshaw fare				
Distance of trip by	Rickshaw increased				
Destination	Change in destination for any activity, if yes, mention the activity and old and new destinations ……				
Job/work	Lost job		Change job		
	Prevented from changing/ accepting job				
Working/- hour	Eating out time for trip from working hours				
	Consuming more non-work hours for trip				
Visiting/Socialising	Prevented from visiting friends/relatives		Prevents invitees in your events		
Education/ training	Prevented from /ed./ training		/		
	children to school unavailable mode/associated hassle				
Health	Negative effect on women/particularly pregnant mother/ ill/aged/Physically challenged member				
	Problems in carrying diseased/injured to hospital/clinic				
Safety/security	Increased experience/facing of insecurity/Crime/		Increased traffic accident/injury		
Crowd	Increase in congestion/discomfort in public bus				
Congestion	Increased in local/rickshaw allowed roads		Decreased in major roads		
Speed	Increased speed of motorised traffic you use				
Other (If any)					

6b. Based on your experience identify the level (in a scale of 5) of likely affect due to rickshaw ban on following groups of people

Criteria													
Gender	Men				Women								
Age	Children		Young parents with children				Aged/senior citizens						
Profession	Students accompanied by guardians		Students going alone		Officials with no office transport		High paid official having office transport		Informal worker				
Residence	Strangers/non-residents in the city						Residents in Dhaka						
Car ownership	Car-owners				Non-Car-Owners								
Location — *City* Residents in / along	mixed land use area				Residential land use area		CBD/Business/office area						
Location — *N'hood* Residents in / along	Major road				Minor road		Access road						
Trip maker	Short (<2Km)				Medium (2-5km)		Long (>5km)						
Income	High				Medium		Low						
Health /patient	Pregnant		Aged		Physically challenged		Cardiac		Diabetic				

Level: Most Affected (5), Affected (4), Less Affected (3), Not Affected (2), Not Affected at all (1)

6c. Regarding the decision making of rickshaw ban,

Has the ban been imposed after adequate public consultation in Dhaka?	Y	N
Have you been informed/ consulted about the ban in the road/route you use?	Y	N
Is the ban contrary to your/ your HH's basic mobility needs?	Y	N
Is it unexpected (in the sense against what should have been done to intervene the mobility or transport problem), in the current transport condition in Dhaka?	Y	N
Is preventing you from using rickshaw for some specific activities? If yes please specify	Y	N
Is preventing some other user who would prefer rick. over other modes despites all its problems?	Y	N
Is preventing your or any of your household member's independent mobility?	Y	N

7. <u>Assessing choice/willingness under current socio-economic condition including affordability</u>

7a. Weight (in a scale of 5) the suitability of different modes for your household

Transport Condition	**Walking**	**Rick-shaw**	CNG	**Public Trans.**	**Para-trans.**	**Car**	**Office service**
Exactly current (when Rick. Banned in some corridors)							
Rickshaw allowed in whole Dhaka							
Whole Dhaka rickshaw banned		X					
Rickshaw banned along the corridor you mostly use		X					
Current + Good public transport*							
Rickshaw allowed in whole Dhaka + Good public transport*							
Whole Dhaka rickshaw banned + Good public transport*		X					

* With expected level of service so that you have to walk max 10 min to reach your current destinations

Weight: Very Suitable (5), Suitable (4), Little Suitable (3), Unsuitable (2), Very Unsuitable (1)

7b. If ban is imposed in particular corridor with condition that the rickshaw can cross the section only after paying a toll, will you agree with the idea? Y / N

7c. Level of agreement to the following statements

Non-motorised vehicle like Rickshaw is a symbol or backwardness	
Car is a symbol of modernity and development.	
The process and outcome of urban transport planning/management/decisions in Dhaka - does not take into account the mobility need and pattern of different user groups i.e. unjust. - serves vested interest in some way or other.	
The decision of rickshaw ban has a link with the unjust transport planning/ management/ decisions	

Weight: Strongly agree (5), Agree (4), Little Agree (3), Disagree (2), Strongly Disagree (1)

7d.LASTLY, Do you agree with the idea of Rickshaw ban?

i) If yes, why/ when? And what substitute will you prefer to use?

……..……

ii) If no, why?

……..……

Thank you very much for your time and cooperation

Signature of the interviewer and date .

Appendix C .

Table C.1: Age distribution of respondents

Age	Frequency	Percent	Valid Percent	Cumulative Percent
Below 17	2	.5	.5	.5
17-25	31	8.1	8.2	8.7
26-40	165	42.9	43.5	52.2
41-60	164	42.6	43.3	95.5
61 & above	17	4.4	4.5	100.0
Total	379	98.4	100.0	
Missing System	6	1.6		
Total	385	100.0		

Source: Field survey, 2012

Table C.2: Work pattern of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Informal Activity/ Hawking, etc	2	.5	.5	.5
Grocery_petty business	8	2.1	2.2	2.7
Garments Worker	4	1.0	1.1	3.8
Student	25	6.5	6.7	10.5
House keeping	49	12.7	13.2	23.7
Govt Service_1st class	11	2.9	3.0	26.7
Govt Service_2nd/3rd class	7	1.8	1.9	28.6
Self employed (Business, own farm, private practitioner)	115	29.9	31.0	59.6
Non Govt/Non Business Job	133	34.5	35.8	95.4
Retired	17	4.4	4.6	100.0
Total	371	96.4	100.0	
Missing System	14	3.6		
Total	385	100.0		

Source: Field survey, 2012

Table C.3: Educational qualification of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Illiterate	3	.8	.8	.8
Primary	10	2.6	2.8	3.6
Secondary	29	7.6	8.1	11.7
Higher Secondary_College	99	25.7	27.4	39.1
Tertiary_Univ	155	40.3	42.9	82.0
Above tertiary	65	16.9	18.0	100.0
10	1	.3	.3	99.7
33	1	.3	.3	
Total	361	93.8	100.0	
Missing System	24	6.2		
Total	385	100.0		

Source: Field survey, 2012

Table C.4: Household distribution according to income (valid percentage of the respondents)

	All study areas	Bijoynogor	Shukrabad	Shyamoli	DHUTS area*
Upto 19999	4.3	1	3.2	8.9	39.8
20k-49999	48.4	34.0	50.0	58.1	39.7
50k & above	47.3	65.0	46.8	33.1	20.4
Total	100.0	100.0	100.0	100.0	
Missing	36	28	3	5	
Total sample	385	128	127	129	
Mean		68790	52352	40645	33,563
St Dev		45975.46	29757.69	20122.87	

*Source: Household survey, 2012 and JICA, 2010:3-9

Table C.5: Further Household distribution according to income

		Frequency	Percent	Valid Percent	Cumulative Percent
Low	Upto 9999	1	.3	.3	.3
	10000-19999	14	3.6	4.0	4.3
Middle	20000-29999	41	10.6	11.7	16.0
	30000-39999	65	16.9	18.6	34.7
	40000-49999	63	16.4	18.1	52.7
High	50000-59999	65	16.9	18.6	71.3
	60000 & above	100	26.0	28.7	100.0
	Total	349	90.6	100.0	
Missing		36	9.4		
Total		385	100.0		

Source: Field survey, 2012

Table C.6: Distribution of Households based on size of housing units (valid percentage of the respondents)

Size (sq. ft)	All	Bijoynogar	Shukrabad	Shyamoli
Below 400	5.8	1.6	3.1	9.4
400-599	2.4	1.6	3.9	4.7
600-799	22.4	15.2	18.0	22.8
800-999	16.1	9.6	28.9	20.5
1000-1199	20.5	25.6	23.4	12.6
1200-1499	19.7	27.2	15.6	16.5
1500& +	13.2	19.2	7.0	13.4
Total	100.0	100.0	100.0	100.0
Missing values	5	3	0	2
Total	385	128	128	129

Source: Field survey, 2012

Table C.7: Distribution of households based on length of stay in the house (valid percentage of the respondents)

Length of stay	All	Bijoynogar	Shukrabad	Shyamoli
Less than 2yr	21.3	13.5	12.7	20.2
2-below 4 yr	10.5	6.3	32.5	10.1
4- below 6yr	22.0	19.0	21.4	25.6
6- below 8yrs	9.2	8.7	10.3	8.5
8- below 10yrs	8.9	7.9	7.1	11.6
10- below 12	7.6	11.9	3.2	7.8
12yrs & above	20.5	32.5	12.7	16.3
Total	100.0	100.0	100.0	100.0
Missing	4	2	2	0
385		128	128	129

Source: Field survey, 2012

Table C.8: Car-ownership Vs household Income

Car_Ownership	Low		Middle				High			GrandTotal
	Upto Tk 9999	Tk 10000-19999	Tk 20000-29999	Tk 30000-39999	Tk 40000-49999	Sub total	Tk 50000-59999	Tk 60000 & above	Sub total	
Yes	0	0	2 (5%)	6 (6%)	7 (11)	15 (9%)	15 (23%)	74 (74%)	89 (54%)	104 (30)
No	1	14	39	58	55	152 (91%)	50	26	76 (46%)	243 (70)
Total	1	14	41	64	62	167	65	100	165	347

Missing Value 38 (9.9%) (Figures in parenthesis represents percentage of the column total)
Source: Field survey, 2012

Table C.9: Distribution of Households based on car ownership

		All	Bijoynogar	Shukrabad	Shyamoli
Valid	Yes	29.6	33.9	27.8	27.1
	No	70.4	66.1	72.2	72.9
	Total	100.0	100.0	100.0	100.0
Missing		3	1	2	0
Total		385	128	128	129

Source: Field survey, 2012

Table C.10: Car-ownership Vs Housing unit size (sq. ft)

		Below 400	400-599	600-799	800-999	1000-1199	1200-1499	1500& above	Total
Car_Own_4	Yes	0	0	3	8	25	37	40	113
	No	22	9	81	52	53	37	10	264
Total		22	9	84	60	78	74	50	377

Missing Value 8 (2.1%) Source: Field survey, 2012

Table C.11: Car-ownership Vs Length of stay (year) in house

		Below 2	2-below 4	4-below 6	6-below 8	8-below 10	10-below 12	12& above	Total
Car_Own_4	Yes	7	4	16	12	17	13	43	112
	No	72	36	67	23	17	16	35	266
Total		79	40	83	35	34	29	78	378

Missing Value 7 (1.8%) Source: Field survey, 2012

Table C.12: Car-ownership Vs Tenure type

		Tenure type		
		Owner	Tenant	Total
Car Ownership	Yes	97	16	113
	No	61	208	269
Total		158	224	382

Missing Value 3 (0.8%)
Source: Field survey, 2012

Table C.13: Length of Car-ownership by households in all study areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below 2 years	13	3.4	13.1	13.1
	2 to below 5 years	35	9.1	35.4	48.5
	5 to below 10 years	24	6.2	24.2	72.7
	10 years & above	27	7.0	27.3	100.0
	Total	99	25.7	100.0	
Missing (and many do not own car)		286	74.3		
Total		385	100.0		

Source: Field survey, 2012

Table C.14: Length of Car-ownership by households in different study areas

		Shyamoli		Shukrabad		Bijoynogar	
		Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Valid	Up to 2 years	5	18.5	4	11.4	4	10.8
	2 to 5 years	13	48.1	14	40.0	8	21.6
	5 to 10 years	4	14.8	5	14.3	15	40.5
	10 years & above	5	18.5	12	34.3	10	27.0
	Total	27	100.0	35	100.0	37	100.0
Missing (do not own car)		102		93		91	
Total		129		128		128	

Source: Field survey, 2012

Table C.15: Distribution of members in all three study areas by time-bound (*routined)* activity

Activities		Number of members*	Percentage	Percentage of Cases
Going for work		467	41.3	121.6
Going to school/study		423	37.4	110.2
Carrying children to school		97	8.6	25.3
Going for daily shopping		54	4.8	14.1
Going for other/rest activities	Going to provide tuition	6	0.5	1.6
	Carrying children to tuition	16	1.4	4.2
	Going for non-daily shopping	20	1.8	5.2
	Going to hospital/clinic	19	1.7	4.9
	Visiting family, relatives and friends	11	1.0	2.9
	Going for sports and gym	3	0.3	.8
	Going for recreation (park/cinema/music)	6	0.5	1.6
	Availing services (PO/bank/barber/etc)	3	0.3	0.8
	Socialising-*Adda*	5	0.4	1.3
	Other	2	0.2	0.5
Total		1132	100.0	294.8

*Multiple responses are allowed. Missing value 1 (0.3%)
Source: Field survey, 2012

Table C.15a: Distribution of members separately in three study areas by their time-bound (*routined)* activities

Activities		Shyamoli		Shukrabad		Bijoynogar	
		N*	Percentage	N*	Percentage	N*	Percentage
Going for work		150	41.6	163	41.9	154	40.3
Going to school/study		133	36.8	136	35.0	154	40.3
Carrying children to tuition		27	7.5	42	10.8	28	7.3
Going for daily shopping		16	4.4	22	5.7	16	4.2
Going for other/rest activities	Going to provide tuition	2	0.6	0	0.0	4	1.0
	Carrying children to tuition	8	2.2	1	0.3	7	1.8
	Going for non-daily shopping	7	1.9	9	2.3	4	1.0
	Going to hospital/clinic	7	1.9	7	1.8	5	1.3
	Visiting family, relatives and friends	8	2.2	2	0.5	1	0.3
	Going for sports and gym	0	0.0	1	0.3	2	0.5
	Going for recreation (park/cinema/music)	2	0.6	4	1.0	0	0.0
	Availing services (PO/bank/saloon/etc)	1	0.3	1	0.3	1	0.3
	Socialising-*Adda*	0	0.0	0	0.0	5	1.3
	Other	0	0.0	1	0.3	1	0.3
Total		361	100.0	389	100.0	382	100.0
Valid case		129		128		127	
Missing case		0		0		1	
Total case		129		128		128	

*N represents the number of all members in the household.
Source: Field survey, 2012

Table C.16: Distribution of members in all three study areas by *time-flexible (other)* activity

Activities		N*	Percentage	Percent of Cases
Going for daily shopping		200	21.4	55.2
Going for non-daily shopping		209	22.3	57.7
Going to hospital/clinic		50	5.3	13.8
Visiting family, relatives and friends		260	27.8	71.8
Eating out-cafe/restaurant		53	5.7	14.6
Going for other activities	Going for work	4	0.4	1.1
	Going to provide tuition	8	0.9	2.2
	Going to school/study	12	1.3	0.3
	Carrying children to school	3	0.3	0.8
	Carrying children to tuition	1	0.1	0.3
	Going for sports and gym	27	2.9	7.5
	Going for recreation (park/cinema/music)	40	4.3	11.0
	Availing services (PO/bank/barber/etc)	23	2.5	6.4
	Socialising-*Adda*	44	4.7	12.2
	Other	2	0.2	0.6
Total		936	100.0	258.6

*N represents the number of all members in the household. Missing value 23 (6.0%)
Source: Field survey, 2012

Table C.16a: Distribution of members separately in three study areas by their *time-flexible (other)* activities

Activities		Shyamoli		Shukrabad		Bijoynogar	
		N*	Percentage	N*	Percentage	N*	Percentage
Going for daily shopping		61	21.3	56	16.7	83	26.3
Going for non-daily shopping		76	26.6	79	23.6	54	17.1
Going to hospital/clinic		17	5.9	13	3.9	20	6.3
Visiting family, relatives and friends		73	25.5	82	24.5	105	33.3
Eating out-cafe/restaurant		2	0.7	30	9.0	21	6.7
Going for other activities	Going for work	0	0.0	0	0.0	4	1.3
	Going to provide tuition	2	0.7	4	1.2	2	0.6
	Going to school/study	8	2.8	3	0.9	1	0.3
	Carrying children to school	1	0.3	1	0.3	1	0.3
	Carrying children to tuition	1	0.3	0	0.0	0	0.0
	Going for sports and gym	7	2.4	17	5.1	3	1.0
	Going for recreation (park/cinema/music)	18	6.3	15	4.5	7	2.2
	Availing services (PO/bank/barber/etc)	5	1.7	12	3.6	6	1.9
	Socialising-*Adda*	15	5.2	22	6.6	7	2.2
	Other	0	0.0	1	0.3	1	0.3
Total		286	100.0	335	100.0	315	100.0
Valid case		118		123		121	
Missing case		11		5		7	
Total case		129		128		128	

*N represents the number of all members in the household.
Source: Field survey, 2012

Table C.17: Trip production rate (number/person/day) and purpose by household income level in DCC area in 2009*

Income group	Home to work	Home to school	To home	Non-home based business	Private	Total
High	0.44	0.28	1.14	0.27	0.63	2.76
Medium	0.42	0.30	1.14	0.25	0.62	2.73
Low	0.45	0.27	1.14	0.24	0.64	2.74
Total	0.44	0.29	1.14	0.25	0.63	2.74

* The baseline survey period of the study is 2009 as per JICA, 2010:1-2 Source: JICA, 2010:3-13

Table C.18: Distribution of members by main r*outined* activity and sex

Activities		Male	Female	Total
Going for work		404 (35.9)	63 (5.6)	467 (41.5)
Going to school/study		248 (22.1)	169 (15.0)	417 (37.1)
Carrying children to school		8 (0.7)	89 (7.9)	97 (8.6)
Going for daily shopping		8 (0.7)	46 (4.1)	54 (4.8)
Going for other activities	Going to provide tuition	5 (0.4)	1 (0.1)	6 (0.5)
	Carrying children to tuition	0 (0.0)	14 (1.2)	14 (1.2)
	Going for non-daily shopping	2 (0.2)	18 (1.6)	20 (1.8)
	Going to hospital/clinic	6 (0.5)	13 (1.2)	19 (1.7)
	Visiting family, relatives and friends	2 (0.2)	9 (0.8)	11 (1.0)
	Going for sports and gym	2 (0.2)	1 (0.1)	3 (0.3)
	Going for recreation (park/cinema/music)	3 (0.3)	3 (0.3)	6 (0.5)
	Availing services (PO/bank/barber/etc)	1 (0.1)	2 (0.2)	3 (0.3)
	Socialising-*Adda*	4 (0.4)	1 (0.1)	5 (0.4)
	Other	1 (0.1)	1 (0.1)	2 (0.2)
Total		694 (61.7)	430 (38.3)	1124 (100.0)

N.B. Figures in the parentheses are the percentages with respect to grand total. All members in the household are considered. Valid cases 384, missing 1. Source: Field survey, 2012

Table C.19: Distribution of members by main *other* activity and sex

Activities		Male	Female	Total
Going for daily shopping		158 (16.9)	42 (4.5)	200 (21.4)
Going for non-daily shopping		61 (6.5)	148 (15.8)	209 (22.4)
Going to hospital/clinic		23 (2.5)	27 (2.9)	50 (5.4)
Visiting family, relatives and friends		119 (12.7)	140 (15.0)	259 (27.7)
Eating out-cafe/restaurant		34 (3.6)	19 (2.0)	53 (5.7)
Going for other activities	Going for work	2 (0.2)	2 (0.2)	4 (0.4)
	Going to provide tuition	4 (0.4)	4 (0.4)	8 (0.9)
	Going to school/study	6 (0.6)	6 (0.6)	12 (1.3)
	Carrying children to school	2 (0.2)	1 (0.1)	3 (0.3)
	Carrying children to tuition	1 (0.1)	0 (0.0)	1 (0.1)
	Going for sports and gym	26 (2.8)	1 (0.1)	27 (2.9)
	Going for recreation (park/cinema/music)	23 (2.5)	16 (1.7)	39 (4.2)
	Availing services (PO/bank/barber/etc)	22 (2.4)	1 (0.1)	23 (2.5)
	Socialising-*Adda*	32 (3.4)	12 (1.3)	44 (4.7)
	Other	2 (0.2)	0 (0.0)	2 (0.2)
Total		515 (55.1)	419 (44.9)	934 (100.0)

N.B. Figures in the parentheses are the percentages with respect to grand total. All members in the household are considered. Valid cases 362, missing 23. Source: Field survey, 2012

Table C.20: Distribution of members of the households by age group

Age group	Number of H/H members	Percentage	Percentage of cases
Below 15 years	300	21.2	78.5
15 - below 60 years	1060	74.9	277.5
60 years and above	56	4.0	14.7
Total	1416	100.0	370.7

Valid 382, Missing 3
Source: Field survey, 2012

Table C.21: Distribution of members by main r*outined* activity and age group

Activities		Below 15 years	15 – below 60 years	60 years and above	Total
Going for work		4 (0.5)	399 (47.7)	17 (2.0)	420 (50.2)
Going to school/study		90 (10.8)	124 (14.8)*	2 (0.2)*	216 (25.8)
Carrying children to school		3 (0.4)	80 (9.6)	2 (0.2)	85 (10.2)
Going for daily shopping		1 (0.1)	40 (4.8)	3 (0.4)	44 (5.3)
Going for other activities	Going to provide tuition	1 (0.1)	1 (0.1)	0 (0.0)	2 (0.2)
	Carrying children to tuition	1 (0.1)	12 (1.4)	0 (0.0)	13 (1.6)
	Going for non-daily shopping	0 (0.0)	16 (1.9)	0 (0.0)	16 (1.9)
	Going to hospital/clinic	1 (0.1)	9 (1.1)	6 (0.7)	16 (1.9)
	Visiting family, relatives and friends	1 (0.1)	9 (1.1)	0 (0.0)	10 (1.2)
	Going for sports and gym	0 (0.0)	1 (0.1)	1 (0.1)	2 (0.2)
	Going for recreation (park/cinema/music)	0 (0.0)	1 (0.1)	3 (0.4)	4 (0.5)
	Availing services (PO/bank/barber/etc)	0 (0.0)	3 (0.4)	0 (0.0)	3 (0.4)
	Socialising-*Adda*	0 (0.0)	0 (0.0)	4 (0.5)	4 (0.5)
	Other	0 (0.0)	1 (0.1)	0 (0.0)	1 (0.1)
Total		102 (12.2)	696 (83.3)	38 (4.5)	836 (100.0)

N.B. Figures in the parentheses are the percentages with respect to grand total. All members in the household are considered. Valid cases 381, missing 4.
*In case of respondents and household members in the age group 60 years and above, opting for 'going to school/study' go for training and skill development activities. Similar is true for people in the middle age group who are not students.
Source: Field survey, 2012

Table C.22: Distribution of members by main *other* activity and age group

			Age group[a]			
			Below 15 years	15- below 60 years	60 and above	Total
Main *other* activity[a]	Work	Count	0	1	0	1
		% of Total	.0%	.2%	.0%	.2%
	Going to provide tuition	Count	0	4	0	4
		% of Total	.0%	.8%	.0%	.8%
	School/study	Count	1	5	0	6
		% of Total	.2%	1.0%	.0%	1.2%
	Carrying children to school	Count	2	0	1	3
		% of Total	.4%	.0%	.2%	.6%
	Carrying children to tuition	Count	0	1	0	1
		% of Total	.0%	.2%	.0%	.2%
	Daily shopping	Count	38	37	5	80
		% of Total	7.5%	7.3%	1.0%	15.9%
	Other non-daily shopping	Count	57	73	6	136
		% of Total	11.3%	14.5%	1.2%	27.0%
	Going to hospital/clinic	Count	11	14	2	27
		% of Total	2.2%	2.8%	.4%	5.4%
	Visiting family, relatives and friends	Count	56	81	17	154
		% of Total	11.1%	16.1%	3.4%	30.6%
	Eating out-cafe/restaurant	Count	10	14	5	29
		% of Total	2.0%	2.8%	1.0%	5.8%
	Sports and Gym	Count	9	3	0	12
		% of Total	1.8%	.6%	.0%	2.4%
	Recreation_park/ cinema/music	Count	4	14	3	21
		% of Total	.8%	2.8%	.6%	4.2%
	Availing Services_PO/bank/ barber/etc	Count	3	2	0	5
		% of Total	.6%	.4%	.0%	1.0%
	Socialisation/Adda	Count	12	10	3	25
		% of Total	2.4%	2.0%	.6%	5.0%
Total		Count	203	259	42	504
		% of Total	40.3%	51.4%	8.3%	100.0%

Percentages and totals are based on responses. Valid 359, missing 26

a. Paired group

Field survey, 2012

Appendix D

Table D.1: Distribution of members by the presence of rickshaw banned corridor or intersection on their way to time bound (*routined*) and time flexible (*other*) activities

	On way to time bound (*routined*) activity			On way to time flexible (*other*) activity		
	N*	Percentage	Percentage of valid cases	N*	Percentage	Percentage of valid cases
Yes	975	89.5	260.7	749	82.5	215.2
No	114	10.5	30.5	159	17.5	45.7
Total	1089	100.0	291.2	908	100.0	260.9
Valid case	374			348		
Missing cases	11			37		

*N represents number of members in the households facing rickshaw banned corridor or intersection
Source: Field survey, 2012

Table D.2: Distribution of members in three study areas by the presence of rickshaw banned corridor or intersection on their way to time bound (*routined*) and time flexible (*other*) activities

	Shyamoli		Shukrabad		Bijoynogar	
	On way to time bound (*routined*) activity	On way to time flexible (*other*) activity	On way to time bound (*routined*) activity	On way to time flexible (*other*) activity	On way to time bound (*routined*) activity	On way to time flexible (*other*) activity
Yes	314 (89.0)	226 (80.7)	332 (87.4)	256 (78.8)	329 (92.4)	267 (88.1)
No	39 (11.0)	54 (19.3)	48 (12.6)	69 (21.2)	27 (7.6)	36 (11.9)
Total	353 (100.0)	280 (100.0)	380 (100.0)	325 (100.0)	356 (100.0)	303 (100.0)
Valid case	127	114	126	120	121	114
Missing cases	2	15	2	8	7	14
Total case	129	129	128	128	128	128

N.B. Figures in the parentheses are the percentages with respect to the total.
Source: Field survey, 2012

Table D.3: Distribution of members by main *time bound* (*routined*) and main *time flexible* (*other*) activities and presence of rickshaw bans/ restriction on their way to the activity

	Presence of rickshaw ban/restrictions on way to time bound (*routined*) activities			Presence of rickshaw ban/restrictions on way to time flexible (*other*) activities		
	Yes	No	Total	Yes	No	Total
Going for work	424 (38.9)	29 (2.7)	453 (41.6)	0 (0.0)	0 (0.0)	0 (0.0)
Going to provide tuition	6 (0.6)	0 (0.0)	6 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)
Going to school/study	359 (33.0)	48 (4.4)	407 (37.4)	1 (0.4)	2 (0.9)	3 (1.3)
Carrying children to school	77 (7.1)	15 (1.4)	92 (8.4)	1 (0.4)	0 (0.0)	1 (0.4)
Carrying children to tuition	11 (1.0)	1 (0.1)	12 (1.1)	0 (0.0)	1 (0.4)	1 (0.4)
Going for daily shopping	42 (3.9)	11 (1.0)	53 (4.9)	9 (3.9)	6 (2.6)	15 (6.6)
Going for non-daily shopping	17 (1.6)	2 (0.2)	19 (1.7)	29 (12.7)	11 (4.8)	40 (17.5)
Going to hospital/clinic	19 (1.7)	0 (0.0)	19 (1.7)	11 (4.8)	3 (1.3)	14 (6.1)
Visiting family, relatives and friends	5 (0.5)	5 (0.5)	10 (0.9)	81 (35.5)	4 (1.8)	85 (37.3)
Eating out-cafe/restaurant	0 (0.0)	0 (0.0)	0 (0.0)	19 (8.3)	0 (0.0)	19 (8.3)
Going to sports and gym	3 (0.3)	0 (0.0)	3 (0.3)	11 (4.8)	3 (1.3)	14 (6.1)
Going for recreation (park/cinema/music)	6 (0.6)	0 (0.0)	6 (0.6)	15 (6.6)	0 (0.0)	15 (6.6)
Availing Services (PO/bank/barber/etc.)	3 (0.3)	0 (0.0)	3 (0.3)	0 (0.0)	1 (0.4)	1 (0.4)
Socialising-*Adda*	3 (0.3)	2 (0.2)	5 (0.5)	10 (4.4)	10 (4.4)	20 (8.8)
Going for other activities	0 (0.0)	1 (0.1)	1 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
Total	975 (89.5)	114 (10.5)	1089 (100.0)	187 (82.0)	41 (18.0)	228 (100.0)
Valid case	374			348		
Missing	11			37		

N.B. Figures in the parentheses are the percentages with respect to the grand total.
Source: Field survey, 2012

Table D.4: Distribution of household members by sex and presence of rickshaw bans/restriction on their way to time bound (*routined*) and time flexible (*other*) activities

	Presence of rickshaw ban/restrictions on way to time bound (*routined*) activities			Presence of rickshaw ban/restrictions on way to time flexible (*other*) activities		
	Yes	No	Total	Yes	No	Total
Male	603 (55.7)	64 (5.9)	667 (61.6)	385 (42.5)	112 (12.4)	497 (54.9)
Female	369 (34.1)	47 (4.3)	416 (38.4)	362 (40.0)	47 (5.2)	409 (45.1)
Total	972 (89.8)	111 (10.2)	1083 (100.0)	747 (82.5)	159 (17.5)	906 (100.0)
Valid case	374			348		
Missing	11			37		

N.B. Figures in the parentheses are the percentages with respect to the grand total.
Source: Field survey, 2012

Table D.5: Distribution of household members by age group and presence of rickshaw bans/restriction on their way to time bound (*routined*) and time flexible (*other*) activities

	Presence of rickshaw ban/restrictions on way to time bound (*routined*) activities			Presence of rickshaw ban/restrictions on way to time flexible (*other*) activities		
	Yes	No	Total	Yes	No	Total
Below 15 years	79 (81)	19 (19)	98 (100)	42 (81)	10 (9)	52 (100)
15 – below 60 years	615 (91)	59 (9)	674 (100)	509 (70.9)	117 (81)	626 (100)
60 years and above	34 (85)	4 (15)	38 (100)	36 (90)	4 (10)	40 (100)
Total	728 (89.9)	82 (10.1)	810 (100.0)	587 (81.8)	131 (18.2)	718 (100.0)
Valid case	371			345		
Missing	14			40		

N.B. Figures in the parentheses are the percentages with respect to the row total.
Source: Field survey, 2012

Table D.6: Distribution of the respondents by identified mobility related problems and sex of the respondents

	Male		Female		Total	
	N*	%	N*	%	N*	%
Problems in finding mode	10	12.2	3	3.7	13	15.9
Too much waiting time	20	24.4	3	3.7	23	28.0
Tussle to get on mode	30	36.6	3	3.7	33	40.2
Problems in negotiating fare	8	9.8	9	11.0	17	20.7
Rising fare	6	7.3	1	1.2	7	8.5
Uncomfortable inside	13	15.9	2	2.4	15	18.3
Road in bad condition/ jarking	25	30.5	1	1.2	26	31.7
Problem in Carrying luggage	3	3.7	0	0.0	3	3.7
Break of journey	13	15.9	10	12.2	23	28.0
No door-door service	4	4.9	3	3.7	7	8.5
Accompanying children/elderly	0	0.0	1	1.2	1	1.2
Other	3	3.7	0	0.0	3	3.7
Total	66	80.5	16	19.5	82	100.0

*N represents number of respondents. Valid cases 385. Missing value 303
Source: Field Survey, 2012

Table D.7: Distribution of the respondents by identified mobility related problems and car ownership

	Car ownership					
	Yes		No		Total	
	N*	%	N*	%	N*	%
Problems in finding mode	1	1.2	12	14.6	13	15.9
Too much waiting time	1	1.2	22	26.8	23	28.0
Tussle to get on mode	1	1.2	32	39.0	33	40.2
Problems in negotiating fare	0	0.0	17	20.7	17	20.7
Rising fare	0	0.0	7	8.5	7	8.5
Uncomfortable inside	0	0.0	15	18.3	15	18.3
Road in bad condition/ jarking	6	7.3	20	24.4	26	31.7
Problem in Carrying luggage	0	0.0	3	3.7	3	3.7
Break of journey	0	0.0	23	28.0	23	28.0
No door-door service	0	0.0	7	8.5	7	8.5
Accompanying children/elderly	0	0.0	1	1.2	1	1.2
Other	2	2.4	1	1.2	3	3.7
Total	7	8.5	75	91.5	82	100.0

*N represents number of respondents. Valid cases 385. Missing value 303
Source: Field Survey, 2012

Table D.8: Distribution of the respondents by mobility related problems and their time-bound (routined) activities

	Going for work	Going to school /study	Carrying children to school	Going for daily shopping	Going to hospital /clinic	Availing Services (PO/ bank/ barber/etc)	Total
Problems in finding mode	11 (13)	1 (1)	0 (0)	0 (0)	0 (0)	1 (1)	13 (16)
Too much waiting time	21 (26)	1 (1)	0 (0)	0 (0)	1 (1)	0 (0)	23 (28)
Tussle to get on mode	30 (37)	3 (4)	0 (0)	0 (0)	0 (0)	0 (0)	33 (40)
Problems in negotiating fare	9 (11)	3 (4)	2 (2)	0 (0)	2 (2)	1 (1)	17 (21)
Rising fare	6 (7)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	7 (9)
Uncomfortable bus (mainly public) environment	13 (16)	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	15 (18)
Road in bad condition/ jarking	24 (29)	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	26 (32)
Problem in Carrying luggage	3 (4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (4)
Break of journey	15 (18)	2 (2)	3 (4)	1 (1)	1 (1)	1 (1)	23 (28)
No door-door service	4 (5)	1 (1)	1(1)	1 (1)	0 (0)	0 (0)	7 (9)
Accompanying children/elderly	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	1 (1)
Other	0 (0)	2 (2)	0 (0)	0 (0)	1 (1)	0 (0)	3 (4)
Total	67 (82)	7 (9)	3 (4)	1 (1)	3 (4)	1 (1)	82 (100)

Valid cases 385. Missing value 303 Source: Field Survey, 2012

*Table D.*9: Distribution of respondents by changes in rickshaw related journey experiences

Scenario	Scenario defined by	N*	Percentage	Missing
Break the journey on the way of respondents activities	Increased	288	75.4	3
	Not increased	84	22.0	
	No idea	10	2.6	
	Total	382	100.0	
Cost of mobility	Increased	267	70.6	7
	Not increased	102	27.0	
	No idea	9	2.4	
	Total	378	100.0	
Daily travel distance	Distance increased	197	52.5	10
	Not increased	164	43.7	
	No idea	14	3.7	
	Total	375	100.0	
Crowd and discomfort in public bus	Increased	232	62.2	12
	No change	133	35.7	
	No idea	8	2.1	
	Total	373	100.0	
Children's school attendance	More reluctant to go	135	36.5	15
	No change	220	59.5	
	No idea	15	4.1	
	Total	370	100.0	
Carrying sick people	Have become more problematic	205	53.2	15
	Not problematic	143	37.1	
	No idea	22	5.8	
	Total	370	100.0	

*N represents number of respondents.
Source: Field Survey, 2012

*Table D.*10: Distribution of respondents in three study areas by changes in rickshaw related journey experiences

Scenario	Scenario defined by	Shyamoli	Shukrabad	Bijoynogar
Break of journey on the way of respondents activities	Yes	104 (81.2)	97 (77.0)	87 (68.0)
	No	23(18.0)	20 (15.9)	41 (32.0)
	No idea	1(0.8)	9 (7.1)	0 (0.0)
	Total	128(100.0)	126 (100.0)	128 (100.0)

Source: Field Survey, 2012

Table D.11: Distribution of respondents by different response strategies after rickshaw bans/restriction

Scenario	Scenario defined by	N*	Percentage	Missing
Forced car ownership by households	Yes (forced to buy car)	45	12.3	20
	No	253	69.3	
	No idea	67	18.4	
	Total	365	100.0	
Forced bus ridership by respondents	Yes (forced to ride bus)	194	52.2	13
	No	163	43.8	
	No idea	15	4.0	
	Total	372	100.0	
Forced walking to avail next mode (by respondents)	Yes (forced to walk)	249	66.4	10
	No	116	30.9	
	No idea	10	2.7	
	Total	375	100.0	
Forced to arrange contact-rickshaw (for any member of the household) to reach *routined* destinations	Yes (forced to arrange contact-rickshaw)	65	18.4	32
	No	267	75.6	
	No idea	21	6.0	
	Total	353	100.0	
Forced to arrange contact-CNG (for any member of the household) to reach *routined* destinations	Yes (forced to arrange contact-CNG)	50	14.2	34
	No	286	81.5	
	No idea	15	4.3	
	Total	351	100.0	
Forced to arrange School Van for school goers	Yes (forced to arrange School Van)	43	13.2	60
	No	265	81.5	
	No idea	17	5.2	
	Total	325	100.0	
Faced prevention from using rickshaws for specific/preferred activity	Yes	65	17.2	8
	No	312	82.8	
	Total	377	100.0	
Scenario	Scenario defined by	N*	Percentage	Missing
Visit to friends/relatives house	Visit prevented	60	16.3	18
	No change	292	79.6	
	No idea	15	4.0	
	Total	367	100.0	
Participation into class/education/training	Prevented	61	16.7	19
	No problem	288	78.7	
	No idea	17	4.6	
	Total	366	100.0	
Effective working hour	Reduced	138	37.3	15
	No change	220	59.5	
	No idea	12	3.2	
	Total	370	100.0	
Non-working hour	Reduced	123	33.3	16
	No change	234	63.4	
	No idea	12	3.3	
	Total	369	100.0	
Perception regarding independent mobilities	Affected	142	57.5	138
	Not affected	105	42.5	
	Total	247	100.0	

*N represents number of respondents.
Source: Field Survey, 2012

Table D.12: Distribution of respondents in three study areas by different forced scenarios after rickshaw bans/restriction

Scenario	Scenario defined by	Shyamoli	Shukrabad	Bijoynogar
Forced car ownership	Yes (forced to buy a car)	10 (8.5)	19 (15.7)	16 (12.7)
	No	96 (81.4)	52 (43.0)	105 (83.3)
	No idea	12 (10.2)	50 (41.3)	5 (4.0)
	Total	118 (100.0)	121 (100.0)	126 (100.0)
Forced to arrange contact-rickshaw	Yes (forced to arrange)	12 (10.2)	25 (22.1)	28 (23.0)
	No	100 (84.7)	78 (69.0)	89 (73.0)
	No idea	6 (5.1)	10 (8.8)	5 (4.1)
	Total	118 (100.0)	113 (100.0)	122 (100.0)
Forced to arrange School Van for school goers	Yes (forced to arrange)	24 (20.9)	12 (11.2)	7 (6.8)
	No	88 (76.5)	87 (81.3)	90 (87.4)
	No idea	3 (2.6)	8 (7.5)	6 (5.8)
	Total	115 (100.0)	107 (100.0)	103 (100.0)

Source: Field Survey, 2012

Table D.13: Distribution of respondents by ***reflection regarding changes in speed and congestion***

Scenario	Scenario defined by	N*	Percentage	Missing
Experience of Congestion in Rickshaw allowed road	Increased	227	60.7	11
	No change	144	38.5	
	No idea	3	0.8	
	Total	374	100.0	
Congestion in major road	Increased	182	48.4	9
	No change	189	50.3	
	No idea	5	1.3	
	Total	376	100.0	
Speed of motorised traffic	Increased	197	52.5	10
	No change	174	46.4	
	No idea	4	1.1	
	Total	375	100.0	

*N represents number of respondents.
Source: Field Survey, 2012

*Table D.*14: Importance/usability* of different modes for Short trip (below 2 km) according to the respondents

	Walk			Rick			CNG			BUS			Car			Paratransit		
Scale	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent
Not at all (1)	28	10.4	10.4	16	4.5	4.5	116	32.9	32.9	60	17.2	17.2	47	14.1	14.1	36	14.9	14.9
Low (2)	22	8.1	18.5	15	4.2	8.7	121	34.3	67.1	87	24.9	42.1	49	14.7	28.8	59	24.4	39.3
Moderate (3)	34	12.6	31.1	42	11.8	20.6	75	21.2	88.4	105	30.1	72.2	55	16.5	45.3	107	44.2	83.5
High (4)	81	30.0	61.1	124	34.9	55.5	28	7.9	96.3	60	17.2	89.4	92	27.6	73.0	37	15.3	98.8
Very High (5)	105	38.9	100.0	158	44.5	100.0	13	3.7	100.0	37	10.6	100.0	90	27.0	100.0	3	1.2	100.0
Total	270	100.0		355	100.0		353	100.0		349	100.0		333	100.0		242	100.0	
Missing val	115			30			32			36			52			143		
Total	385			385			385			385			385			385		
Mean	3.7889			4.107			2.15			2.79			3.39			2.64		
Std Dev	1.3175			1.0629			1.082			1.22			1.387			0.955		

*Rated in a scale of 1 to 5 by the respondents (1 for lowest, 5 for highest)
Source: Field Survey, 2012

*Table D.*15: Importance of different modes for Medium trip (2 to less than 5KM) according to the respondents

	Walk			Rick			CNG			BUS			Car			Paratransit		
	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent
Not at all (1)	78	29.8	29.8	8	2.2	2.2	32	9.1	9.1	17	4.8	4.8	36	10.8	10.8	32	13.2	13.2
Low (2)	76	29.0	58.8	46	12.9	15.2	59	16.7	25.8	38	10.8	15.7	20	6.0	16.8	53	21.9	35.1
Moderate (3)	56	21.4	80.2	99	27.8	43.0	172	48.7	74.5	87	24.8	40.5	62	18.6	35.4	97	40.1	75.2
High (4)	38	14.5	94.7	144	40.4	83.4	83	23.5	98.0	141	40.2	80.6	81	24.3	59.8	49	20.2	95.5
Very High (5)	14	5.3	100.0	59	16.6	100.0	7	2.0	100.0	68	19.4	100.0	134	40.2	100.0	11	4.5	100.0
Total	262	100.0		356	100.0		353	100.0		351	100.0		333	100.0		242	100.0	
Missing	System			29			32			34			52			143		
Total		123		385			385			385			385			385		
Mean	2.32			3.56			2.93			3.58			3.77			2.81		
Std Dev	1.302			.987			.917			1.068			1.325			1.049		

Source: Field survey, 2012

*Table D.*16: Importance of different modes for Long Trip (More than 5KM) according to the respondents

	Walk			Rick			CNG			BUS			Car			Paratransit		
	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent	Frequency	Valid Percent	Cum. Percent
Not at all (1)	171	65.8	65.8	101	28.5	28.5	25	7.1	7.1	17	4.8	4.8	39	11.7	11.7	50	20.7	20.7
Low (2)	55	21.2	86.9	126	35.5	63.9	38	10.8	17.8	16	4.6	9.4	10	3.0	14.7	57	23.7	44.4
Moderate (3)	12	4.6	91.5	58	16.3	80.3	70	19.8	37.7	42	12.0	21.4	26	7.8	22.5	94	39.0	83.4
High (4)	15	5.8	97.3	25	7.0	87.3	170	48.2	85.8	92	26.2	47.6	74	22.2	44.7	38	15.8	99.2
Very High (5)	7	2.7	100.0	45	12.7	100.0	50	14.2	100.0	184	52.4	100.0	184	55.3	100.0	2	.8	100.0
Total	260	100.0		355	100.0		353	100.0		351	100.0		333	100.0		241	100.0	
Missing	125			30			32			34			52			144		
Total	385			385			385			385			385			385		
Mean	1.58			2.40			3.52			4.17			4.0631			2.5228		
Std Dev	1.004			1.31			1.085			1.112			1.34397			1.01679		

Source: Field survey, 2012

*Table D.*17: Mean rating of usability/importance of rickshaw for short trip by household income groups

Rating of usability/ importance	Income groups			Total
	Low (Tk below 20000/month)	Medium (Tk 20000-49999/month)	High (Tk 50000 and above/month)	
Not at all (1)	0 (0.0)	7 (2.1)	7 (2.1)	14 (4.3)
Low (2)	0 (0.0)	7 (2.1)	7 (2.1)	14 (4.3)
Moderate (3)	6 (1.8)	12 (3.7)	21 (6.4)	39 (12.0)
High (4)	4 (1.2)	52 (16.0)	58 (17.8)	114 (35.0)
Very High (5)	2 (0.6)	82 (25.2)	61 (18.7)	145 (44.5)
Total	12 (3.7)	160 (49.1)	154 (47.2)	326 (100.0)

N.B. Figures in the parentheses are the percentages with respect to grand total. Missing value 59 (15.3%).
Source: Field Survey, 2012

*Table D.*18: Choice of modes (means of rating, rated in a scale of 5) by respondents under different conditions

EXACTLY CURRENT CONDITION								
		WALK	RICKSHAW	CNG	Public trans.	Paratransit	CAR	Office service
N	Valid	374	377	224	371	345	291	238
	Missing	11	8	161	14	40	94	147
Mean		3.6818	3.7666	2.8973	3.4232	2.8696	3.8900	2.9496
Std. Deviation		.93650	.86826	.88495	.95657	.95103	3.37868	1.24167
RICKSHAW ALLOWED IN WHOLE DHAKA								
N	Valid	374	374	223	367	343	292	233
	Missing	11	11	162	18	42	93	152
Mean		3.6176	4.3075	2.7892	3.3079	2.6531	3.5308	2.7854
Std. Deviation		1.07908	.73888	.87789	1.00573	1.03126	1.45579	1.20214
EXACTLY CURRENT CONDITION + GOOD PUBLIC TRANSPORT (PT)								
N	Valid	212	208	209	210	188	160	140
	Missing	173	177	176	175	197	225	245
Mean		3.7028	3.7885	2.8086	4.4095	2.8191	3.2188	2.5071
Std. Deviation		1.07597	.94458	3.61111	.72805	1.12305	1.46949	1.12203
RICK ALLOWED IN WHOLE DHAKA + GOOD PT								
N	Valid	210	208	209	208	185	160	139
	Missing	175	177	176	177	200	225	246
Mean		4.1048	4.2212	2.6459	4.3990	2.7730	3.0125	2.4604
Std. Deviation		5.13534	.87870	1.65221	.82204	1.15736	1.49627	1.13103

Source: Field Survey, 2012

*Table D.*19: Choice of rickshaw (rated in a scale of 5) by respondents in three areas **under current condition**

		Shyamoli		Shukrabad		Bijoynogar	
	Rating	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Valid	1-lowest	1	.8	1	.8	1	.8
	2			2	1.6	19	14.8
	3	41	32.8	31	25.0	43	33.6
	4	60	48.0	60	48.4	40	31.2
	5-highest	23	18.4	30	24.2	25	19.5
	Total	125	100.0	124	100.0	128	100.0
Mean			3.8320		3.9355		3.5391
Missing		4		4		0	
Total		129		128		128	

Source: Field survey, 2012

*Table D.*20: Choice of rickshaw (rated in a scale of 5) by respondents in three areas **if rickshaw is allowed in Whole Dhaka**

		Shyamoli		Shukrabad		Bijoynogar	
	Rating	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Valid	1-lowest	1	.8	1	.8	1	.8
	2	1	.8			2	1.6
	3	4	3.3	13	10.4	18	14.3
	4	56	45.5	57	45.6	55	43.7
	5-highest	61	49.6	54	43.2	50	39.7
	Total	123	100.0	125	100.0	126	100.0
Mean			4.4228		4.3040		4.1984
Missing		6		3		2	
Total		129		128		128	

Source: Field survey, 2012

*Table D.*21: Choice of rickshaw (rated in a scale of 5) by respondents in three areas **under exactly current condition + Good Public Transport (PT)**

		Shyamoli		Shukrabad		Bijoynogar	
	Rating	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Valid	1-lowest					4	6.3
	2	1	1.4	1	1.4	13	20.6
	3	18	25.4	19	25.7	13	20.6
	4	32	45.1	39	52.7	20	31.7
	5-highest	20	28.2	15	20.3	13	20.6
	Total	71	100.0	74	100.0	63	100.0
Mean			4.000		3.9189		3.3968
Missing		58				65	
Total		129				128	

Source: Field survey, 2012

*Table D.*22: Choice of rickshaw (rated in a scale of 5) by respondents in three areas **if rickshaw is allowed in Whole Dhaka + Good PT**

		Shyamoli		Shukrabad		Bijoynogar	
	Rating	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Valid	1-lowest					2	3.2
	2	1	1.4			6	9.5
	3	4	5.6	7	9.5	18	28.6
	4	26	36.6	27	36.5	22	34.9
	5-highest	40	56.3	40	54.1	15	23.8
	Total	71	100.0	74	100.0	63	100.0
Mean			4.4789		4.4459		3.6667
Missing	System	58		54		65	
Total		129		128		128	

Source: Field survey, 2012

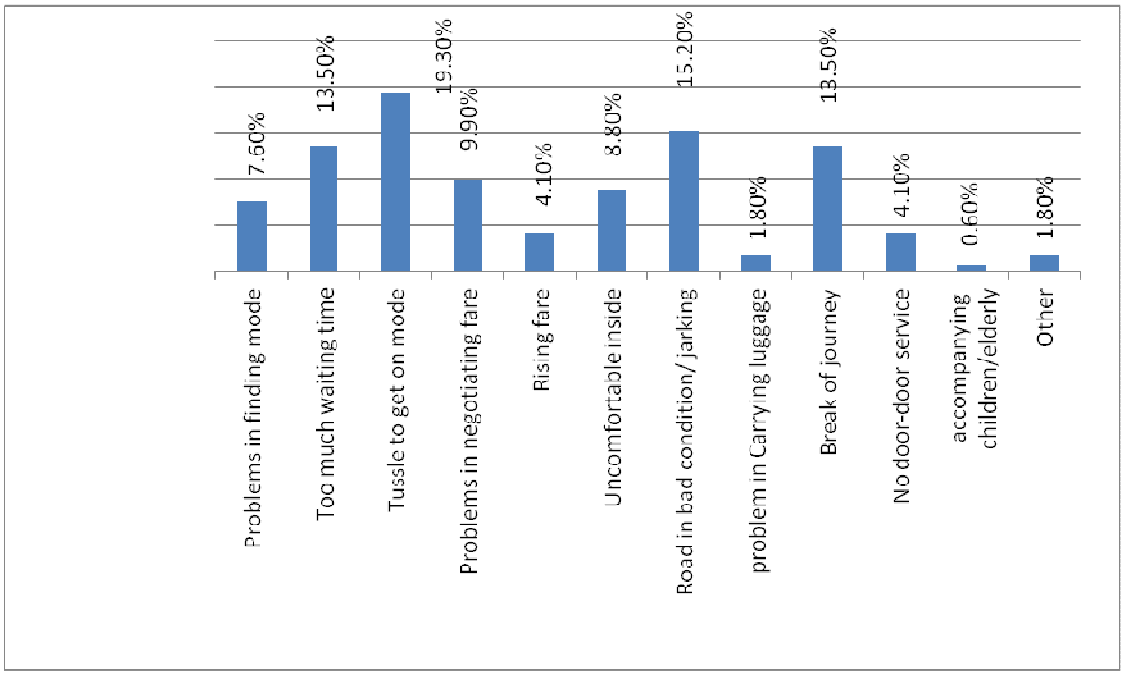
*Table D.*23: Mean rating of adverse effect of different groups of people as per the perception of the respondents in a scale of 1 to 5 (1-least, 5-highest)....contd.....

		Sex		***Age***			***Nature of Work or activities***					***Residentship***	
		Men	Women	Children	Young Parents having kids/children	Senior Citizen	Students accompanied by Guardian	Students going alone	Officials with no office transport	Officials with office transport	Workers in Informal sectors	Non residents in Dhaka	Residents in Dhaka
N	Valid	383	383	372	373	372	375	372	369	358	353	355	360
	Missing	2	2	13	12	13	10	13	16	27	32	30	25
Mean		3.1253	4.5405	4.1317	4.1635	4.4651	4.2800	3.8844	4.2629	2.1983	3.3938	3.5972	4.1611
Std. Deviation		.97881	.64134	.74252	.94332	2.15851	2.69759	1.00943	4.59013	1.16547	1.40238	3.19843	2.73564

		Car-ownership		***Housing Location in/along***			***Length of trip***			***Physical/health condition***				
		Car owners	Non-car owners	Major Road	Minor Road	Access Road	Short trip	Medium trip	Long trip	Pregnant mother	Old and ill	Physically challenged person	Cardiac patient	Diabetic patient
N	Valid	360	363	335	337	338	356	356	358	377	376	374	373	375
	Missing	25	22	50	48	47	29	29	27	8	9	11	12	10
Mean		2.3222	4.4793	2.8985	3.5994	3.6479	4.2978	3.7669	2.4441	4.2838	4.5293	4.3021	3.9196	3.1680
Std. Deviation		2.93885	2.39163	1.41268	1.37248	.91655	1.88876	2.84018	1.23486	.85774	2.69106	.67283	.93266	1.23281

Source: Field survey, 2012 Mean of all the means 3.8985

Appendix D-1: Figure D.1



Source: Field survey, 2012 Percentage based on valid response. Valid case 171, missing 114

Figure D.1: Distribution of problems faced by respondents

Appendix E: Focus group discussions (FGDs) .

a. FGDs with guardians at schools

FGD E.1: At Dhanmondi Girls' School, Dhanmondi (Near Shukrabad)

Introduction

The school is a Bangla medium non-government school. As the name says, this is a girls only school. The discussion was occurred on a week day and the group consists of different types of parents. Here the focus group was the parents who brought his/her daughter to the school and again take them to home. Most of them do not wait; they come and drop them; go back to home and again return to pick their daughter when school finishes. More over mainly mothers are involved in this activity. The members of the group are more or less from the middle income group range. 2 out of 8 have car of their own. The list below introduces the group.

	Name	Address	Child reading in class[93]	Mode used for taking to and from school
1	Mrs. H.	Sukrabad	8	Walk + Rickshaw
2	Mrs. R.l	Jigatola	6	Rickshaw
3	Mrs. P.	Lalmatia	6	Car
4	Mrs. S.	Dhanmondi	5	Walk
5	Mrs. A.	Shukrabad	7	Walk + Rickshaw
6	Mrs. Sh.	Kolabagan	9	Rickshaw
7	Mr. A.	Kathalbagan	8	Car
8	Mr. R.	Sukrabad	5	Walk + Rickshaw

Discussion summary

All the parents in the group expressed a deep concern about the security of the young girls on their way to and from school. Most of them told that the environment at present is not gender friendly; young girls might be harassed if they are alone on the transport mode. Hence it is obvious for them to escort daughter on the way to and from school. Moreover they also told that in present transportation system it is very hard for young girls to move alone and safely, despite the fact which they agreed unanimously that many young girls are moving in public transport alone; but those girls must not have any other choice, they added.

When the group was asked regarding the factors while choosing modes, most of them mentioned about journey time, cost, availability, safety and comfort. But apart from these modal aspects, mothers expressed a more concern for safety of their daughters. Plus one mother, not having car, added: "*The car owners face less problems in travelling, as they have more option for their own movement pattern*"; others complied with her. In general, the parent from the non-car owning households, walk and use rickshaw for travelling

[93] Usually in Bangladesh schooling starts at class one at the age of 5/6 years. But now in some schools there is pre-school section.

shorter distance while for longer distance they usually use bus and in few cases, CNG. To accompany children to and from school main modes are walk plus rickshaw. But they informed that finding a rickshaw in the morning becomes difficult and during returning as the demand for rickshaws goes very high around the school premises, ricksahw-wallas demand excessive fare showing different reason including extra long distance to be covered for avoing rickshaw banned/restricted roads/intersectipons. Car owners are more dependent on car, despite facing different problems like inadequacy of parking, theft of car parts (like mirror), dependace on driver. But other members of the car-owning households face difficulties. One car owner even expressed that they do not have more than one car so that all the members of the family could use them. Mrs. Puja Karmaokar coming form Lalmatia informed: *"while my girl and I use the car to come to school, her father have to wait at home for going to office by car. But at noon he has to leave the car to pick us from the school . So her father has to come from office by bus and I have to come to school (for pick up) by rickshaw; a daily nightmare for both of us"*

Guardians accompany their children every school day, and also during the weekend, if extra class/examination is declared to cover the postponed class/examination for strike or any disrupting event, mainly political. Mothers are mainly the person who accompany child and usually some of them wait until the classes are over. Fathers, who accompany their children drop them to school on their way to work. Then either thyy or mother of the children pick them after school hours. During weekend, mainly parents look after these matters of dropping and picking up; mothers are spared.

In this group there are three members coming from sukrabad. It is noticeable that on their way to school they have to face the rickshaw ban two times: one obviously at Shukrabad as Mirpur road is off-limit for ricksahws, the other one is near the school. There is another way to avoid the banned section near the school, but that requires more money, time and distance to be covered. So they cross the Mirpur road and ride on the rickshaw. They added that, crossing the road involves risk of accidents as there is not enough foot over-bridge. If they have to use a foot over-bridge they have to walk a considerable distance. Mrs. Arifa Zannat commented: **"***While the time of hurry my daughter and I have to cross the road directly with enormous risk of encountering fast moving vehicles, but we cannot waste time [!]. We do not have a rickshaw at our desired place; we have to go to Dhanmondi side."*

But negotiating a rickshaw ride at reasonable fare is another difficult task ahed after crossing the road. From Shukrabad to Dhanmondi Girls' School they have to pay around Tk 25-30 for each trip, whereas reasonable fare, according to them should be Tk 15. Moreover, guardians work at home has also increased after rickshaw ban; they have to prepare their daughter and themselves earlier than the time when rickshaw was allowed. In such condition, Mrs. Habiba Islam, coming from Shukrabad told; *"Although my family is not solvent enough, we are thinking of buying a car, after watching the advantages of car-use. Moreover I feel like being deprived while using the road as the car owner can pass any section very easily, no body obstruct them as even they are given priority than the pedestrian; in this situation by compromising with some other household expenditure my husband and me have decided to buy a car as early as possible".*

When the groups was asked if the rickshaw bans/restrictions are affecting the mobility pattern of them and their household members, except Md. Asfaque hossain all have replied affirmative, particularly for small distance trips to school, shopping etc. Most of them told that walking could be accepted for further short trip, but for other trips rickshaw is very suitable for them. Majority in the group agreed that the decision, particularly in a context of no other alternative like public bus, better walking environment, was creating a "social division" and more importantly none of them were consulted about the rickshaw ban ever.

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FGD E.2: At Wills little flower school (Near Bijoynogar)

Introduction

The school is a mixed medium (both Bangla and English; as per the choice of the students/parents) for both boys and girls. There are two shifts- morning and day, in the school. Fist one is for primary section, upto class 5 and the other one is for secondary section (from class 6 - 10). The A focus group discussion was done on a school day at noon (when morning shift finishes and day shift starts) on the footpath where guardians use to flock together after dropping or before picking up their children. The students in the school are both from high and middle income households and having or not-having private cars. But none of the guardians of this FGD had private car. The list of participants, all having children in primary level, is given below.

	Name	Address	Child reading in class	Mode used for taking to and from school
1	Mrs.S.	Shantinagar	4	Rickshaw +walk
2	Mrs.N.	Siddeswari	4	rickshaw + walk
3	Mrs.R.	Bijoynagar	4	rickshaw + walk
4	Mrs.Z.	Bijoynagar	4	walk
5	Mrs. K.	Segunbagicha	4	walk

Discussion summary

he guardians, all of them are mothers of the students, said it was necessary for them to bring their children to the school because they were not old enough to come to school alone. There are several other school van facilities for the students but they do not find them reliable and safe.

Mothers either use rickshaw or walk on the way to and from the school as they live "quite near" to the school at Shantinagar, Bijoynogar and Shiddeswari use rickshaw. They can come by rickshaw only upto a point near Kakrail intersection, which is about 200 metres from the school. Then have to cross the road. Although there is a foot over bridge adjacent to the school, many students and parents do not use them. Last year (i.e. in 2011, field work was done in 2012) a fatal accident caused the death of a primary student

and her mother as a bus ran over them. They informed that many other guardians, particularly father, who come from Bijoynogar and Shegunbagicha with their children do not use rickshaw at all for the break of journey and "excessive" demand for fare by the *rickshaw-walla and* prefer of forced to walk. But Mrs. Sangida says "*My child always opposes to walk in hot weather days, particularly during returning to home*." A large number of mothers of primary students in this school, as has been found during the FGD and been reported by the participants, do not at all go back home after dropping their children in the early morning. They return at noon with their children. A participant, who also do so, expressed utter helplessness: "*What can I do? Otherwise I have to make four trips. I cannot find rickshaw for each trip, nor it will reasonable at the current financial condition of family. My husband leaves home for office one hour after we leave. The house remains under lock and key for 3/4 hours which increase the risk of being theft. Plus after returning home, when I am damn tired, I have to prepare the lunch and do all the pending household activities*".

Restrictions/bans on rickshaws have a great impact on other activities done by mothers and mobility of other household members.. They said that sometimes they have to sacrifice going to the places where they must have to use "costly" CNG,a s rickshaw is not allowed somewhere in between. Some other yet continue the actrivitry, only at the cost of more break of journeys. Mrs. Razia said: "*before going to Mouchak [a prominet shopping area] I used rickshaw directly from my home but now I can go by rickshaw upto Kakrail, then get down, cross the road and take another rickshaw from kakrail. Sometimes finding a rickshaw even at higher fare becomes very much difficult*". Mrs. Nilufar said that earlier she went to new market [another very promonent shopping zone, around 5-6 km from her home] by rickshaw easily; now she has stopped going there and when necessary she only goes on holidays when rickshaw ban situation is more relaxed.

According to them, although all are suffering from this rickhaw ban - more or less, women especially who take their children to school, aged, physically challenged people are the most adversely affected. Mrs. Nilufar appealed that at least these people should be spared in the banned/restricted areas. Mrs Sangida and Mrs. Razia do not prefer bus, rather use CNG, if compelled to so, although bus is even less costly than rickshaw. But, other said that if required they will use bus. But all of them are unanimous that the condition inside the bus and arangements for getting in and out from the bus are neither suitable nor safe for the women and children.

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FGD E.3: At YWCA School, Mohammadpur (Near Shyamoli)

Introduction

This is an English medium school for both boys and girls. Students belong mostly to medium income households having or not having private car. The list of participants in the group is given below.

	Name	Address	Child reading in class	Mode used for taking to and from school
1	Mrs. S.	Dhanmondi	5	Walk + Rickshaw
2	Mrs. S.	Lalmatia	4	Walk
3	Mrs. R.	Mohammadpur	4	Rickshaw
4	Mrs. N.	Kolabagan	6	Walk + Rickshaw
5	Mrs. SR	Mohammadpur	7	Car
6	Mr. A	Lalmatia	8	Rickshaw
7	Mr. N	Jigatola	8	Car
8	Mr. T.	Sukrabad	4	Walk + Rickshaw

Discussion summary

It has been found that mainly mothers are involved in carrying children to school. Neraly half of them stay till the class ends. Like the previous FGDs, here also the guardians stated security and safety of the children as the reason for carrying children to school. They do not feel secured when their children's are on the way to school, mainly the young children and girls. They told that they prefer school bus service mostly for this purpose. As the school does not have bus service of its own (which some of the English medium schools have), they themselves have to escort their children using rickshaw or foot, which are comparatively more secured and available, at current condition and context of the city. But finding rickshaw and negotiating it with a reasonable fare, both are becoming harder day by day. For most of the participant each rickshaw trip costs Tk 20 to 40 depending on the situations like time of the day (peak/off-peak hour), school finishing hour or not, rain, transport strike (when rickshaws normally ply on, and motorised transport are remain off). Mrs. Selina said **"***We have to pay double, sometimes more than double fare in the rainy day as there is a shortage of rickshaws in those day, and the situation gets worse when it is the examination day***".** To avoid all these hassles guardians who own cars always use them, at least for school trips.

The participants informed that some of the students and their parents used to come from long distance mainly using the school bus provided by the government, but sometimes the bus service remains off because of the vacation of particular schools having much more students, (for example, Vikarunnesa School, Dhanmondi branch). They also informed that two years back when the school bus service was introduced on the Mirpur road as an experiment by the authority, it got much popularity to its target

group. But as time passed the service became less frequent and reliable, including remaining totally closed on several instances.

Opining on the decision of rickshaw ban, there was a mixed response. However, those supporting it also said that it is only useful for main roads and some intersections in the main road should be kept open for rickshaws so that they can cross and connect different parts of the city.

Plus all of them agreed that forced walking increased and nearly half of them took it positively for its good effect on health. They also pointed out that forced car-ownership was also on the rise in the city due to the bans/restriction.

When asked to choose a preferable mode for travelling within Dhaka city, they were divided also into two groups. Those who had cars preferred the mode. For the rests advantage of rickshaw to provide door to door service in Dhaka was important and hence preferred rickshaws for short trip, as well as walking in some case. But for long trip they prefer bus as it takes less time and cost. But they would CNG only in emergency or if have to travel with family for a longer distance. But they do not prefer it because of its high fare price.

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FGD E.4: At Nobarun Uccha Biddaloy, Dhanmondi

Introduction

This is a Bangla medium school. The discussion took place occurred on a week day and the group consists of different types of parents. The list of the participants in the group and a brief idea about the parents are given below;

	Name	Address	Child reading in class	Mode used for taking to and from school
1	Mrs. A.	Kathalbagan	4	Rickshaw + Walk
2	Mrs. N.	Tollabagh	3	Walk
3	Mrs. S.	Kolabagan	4	Rickshaw + Walk
4	Mrs. P.	Tollabagh	2	Walk
5	Mrs. SZ	Raza bazzar	Play	Rickshaw + Walk
6	Mrs. SR	Shukrabad	3	walk
7	Mr. B.	Shukrabad	3	walk

Socio economic information:

All these members of the group are more or less from the middle income group range. They do not have very high income source to afford cars. More over mainly mothers are involved in taking children to and from school.

Discussion summary

According to the parents the city is "not suitable for the children to move alone". Moreover since there is no school bus service, or van service (usually provided as a local/private initiative) they have to escort their children. Like other guardians in other schools, escorting is mainly mothers' activity. Those residing nearby, usually walk to and from school for a maximum of 20 minutes. But Mothers coming from Kanthalbaghan, Kalabagan and Raza Bazaar have to come by rickshaw despite presence of rickshaw banned/restricted roads/intersections on their way. Mrs. Sabrina coming from Kalabagan said: *"Carrying little boys and girls to school has become tough now-a-days due to rickshaw ban on Dhanmondi main road, plus there is no van service. But the children are unable to carry heavy school bags alone. Overall, we are facing enormous extra pressure to ensure our children reach school and return home safely and comfortably"*. Mrs. Shila, from Raza Bazaar, informed that she faces the ban two times at Shukrabad and Dhanmondi. She also said: *"My girl is very little to be carried by others; except her father and I. I have to pass whole time in the school premise like her. This is seriously hindering household activities. We have employed a maid servant for cooking and washing, but who will do other activities including visiting relatives, attending social activities. We do not have any social life, as if all the hours are spent outdoor or on the road"*.

Besides, their own problems, most of the participants expressed strong sympathy for the aged persons and the children. One of them said: "all [section of] the people of the city have not been considered while taking the decision of rickshaw ban".

However, Mr. Bashar, from Shukrabad observed that rickshaw bans/restrictions had also some positive impacts. He mentioned that the speed of vehicles have been increased "in the main road of Dhanmondi" and many of the people are now willing to walk rather than using rickshaw for the short trip. He continued: *"When rickshaw was allowed I usually went to Shanker by rickshaw; but now as I have to face break of journey, so I go on foot. It requires more time but it is a good habit."*

Regarding preference for modes at present situation, most of them argued for rickshaw and Bus; none of them can afford car. They also told about walking but regreted that the the city is in no way pedestrian friendly. Hence they are bound to use rickshaw. For long distance they favoured bus. CNG would be used when all in the family are going out altogether.

At the end regarding the idea of rickshaw ban, a strong opposition was expressed by mothers. But Mr. Bashar had a different view: *"Ok, rickshaw ban can be acceptable in major roads but there must be some other options for short trip makers and the pedestrian network should made user friendly. Then rickshaw ban will be accepted by all."*

b. FGDs with rickshaw-wallas at rickshaw garages

FGD E.5: Rickshaw garage at Malibagh (near Bijoynogar)

Introduction

The owner of this garage, known as *mahajan,* has more than 25 rickshaws. The *rickshaw-wallas* come to the garage and pick a rickshaw with a rent, known as *joma*, of Tk. 150 for a shift (8 hours) or Tk. 250 for two shifts or whole day. All the *rickshaw-wallas* in this garage are migrated from the rural areas In this focus group *rickshaw-wallas* have migrated from mainly from three districts: Kurigram, Rangpur and Lalmonirhat. Half of the participants are seasonal *rickshaw-wallas* who go back to their villages during planting and harvesting seasons. The list of the participants and a brief about them is given below

	Duration in this garage (year)	**Duration of rickshaw pulling in Dhaka (year)**	**Duration of rickshaw pulling in life (year)**	**Home district**	**Is family living in Dhaka (Y/N)**	**If seasonal rickshaw-walla (Y/N)**	**Pedal whole day (2 shifts) or 1 shift?**	**Reason for choosing this garage**
1	2	2.5	2.5	Kuirgram	Y	N	1	Have common relative
2	0.5	1	1	Rangpur	N	Y	2	Elder brother has relation
3	5	8	8	Lalmonirhat	Y	N	2	Relative of the owner
4	0.4	1	2	Kurigram	N	Y	2	Have common friend
5	4	4	4	Kurigram	N	No	1	Have common relative
6	0.75	3	3	Rangpur	N	Y	1	Have common relative

General Discussion

They mentioned unanimouslyly that the prime benefit of this mode is its accessibility to each corner and every type of roads in the city; but it is too much compared to car or motocycle and pulling it is very a hard job.

They generally prefer two types of trips: short trips and long trips. In one shift, on an average, they make 25-30 trips. It fetches them on an average Tk. 400-500 per shift per day or Tk. 700-800 per day (in two shifts, whole day). They said, for the banning of rickshaws the accessibility of rickshaws has reduced a lot. They rickshaws can not go everywhere. Making longer trips has become difficult and the frequency of longer trips has also reduced. To go to some places, sometimes they have to run through a long distance

unnecessarily only for the banned corridor on the route. Some rickshaw-wallas have admitted that to make longer trips they demand much high fare now.

In different parts of the day they have different passenger groups - in the morning the school goers, while in the evening the office returnees are prominent. For the banning all trip makers are more or less affected. A member of this discussion group, Mr. A. J. said, "*When a passenger wants to go Segunbagicha from Malibagh sometimes it become problematic because of the banned corridor. Though they get on a rickshaw but they must have to get down from the rickshaw at kakrail. In that case, we have to negotiate with hime/her for the full rent to Segunbagicha, because I might not find another passenger to come back. But, bearing full fare for a half ride is of course problematic for passenger*". Another rickshaw-puller Mr. S. added**,** "*But sometimes it is considered for the students. If the passenger is a student of school, college or university and shows his/her ID card then the rickshaw can pass through the banned corridor.*"

Now when the group was asked about their mental and physical condition and the relationship with their household members, we observed a mixed responses. Some *rickshaw-wallas*, mainly the young and unmarried ones pull rickshaws for one shift mainly as they don't need to pull rickshaw for two shifts. On the other hand, the older ones pulls rickshaw for two shifts as they often have a large family to feed. However, some one r*ickshaw-walla* gave priority to stay with and pass time with the family over pulling for the second shift. But all *rickshaw-wallas* have agreed in one point that pulling rickshaw for two shifts is very hard job.

All of them have to go to villages as their families or relatives or 'roots' are there. Some go frequently-once a month, others go after every three months interval. However, these frequencies are never fixed and regular. But seasonal *rickshaw-wallas* would must go home in the planting and harvesting seasons. They themselves normally carry the money for the family, but in some special cases they send the money through some reliable person.

They are unanimous that banning rickshaw has not reduced traffic congestion but has added problems to daily mobility of the passengers; even after the bans the number of rickshaw and garage has increased indicating that income from owning a garage has increased; lastly, due to its demand rickshaw cannot be completely withdrawn from the city.

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FGD E.6: Rickshaw garage at Mohammadpur (near Adabor, in between Shukrabad and Shyamoli)

Introduction

This focus group is composed of rickshaw pullers coming different parts of the country. Previous they were either unemployed or engaged in agriculture. The rent for rickshaws, i.e. *joma*, per shift varies from 70-100 in this garage. Their brief introduction is as follows:

	Duration in this garage (year)	Duration of rickshaw pulling in Dhaka (year)	Duration of rickshaw pulling in life (year)	Home district	Is family living in Dhaka (Y/N)	If seasonal rickshaw-walla (Y/N)	Pedal whole day (2 shifts) or 1 shift?	Reason for choosing this garage
1	2	4	6	Bogra	N	N	1	Have common relative
2	1	1	1	Faridpur	N	Y	1	Elder brother has relation
3	3	12	12	Rangpur	N	Y	2	Have common relative
4	0.25	1	5	Lalmonirhat	N	Y	1	Relative of the owner
5	6	8	10	Chandpur	N	N	2	Have common relative
6	5	5	9	Borgna	N	N	1	Have common friend
7	0.5	1	1	Kuri-gram	N	Y	2	Have family relation

General Discussion

The participants agreed that although rickshaw pedalling is one of the most laborious tasks and it has serious negative health consequences in old ages, in Dhaka city they get some advantages in this work such as high rickshaw fare, proximity to urban facilities compared to villages (i.e. number of short trip makers are high) etc. what so ever they also have different impediments of their day to day life.

All the participants have family back in villages. They said that rickshaw pulling is more unsafe from driving any other modes in busy roads. In rainy season, they face more disadvantages. Behaviour of traffic police is rude with them than drivers of other modes.

Each rickshaw pulling shift is usually for 6 to 8 hours. But some of them pedal at mid night in karwan bazar, kamlapur area. In a typical shift they earn on an average of Tk. 300-500. A rickshaw puller cannot pull rickshaw all days in a week. Longer trips are made mainly before 8 a.m. and after 8 p.m. because many roads are banned for rickshaw pulling. Type of passenger varies with time of the day. In the morning children, boys and girls travel by rickshaws to their schools and colleges. For making a trip they consider the road condition, traffic jam, fare, trip length and number of passenger.

They have discussed about many aspects of Rickshaw banning and how it has affected their life. One *rickshaw-walla* said that for bans trip length has decreased and breaks of journey have increased. Some fixed trip routes are created, having fixed but comparative higher fare, in between many trip rickshaw banned roads. Some *rickshaw-wallas* just pull rickshaw in this fixed ink. Due to the ban young people walk a certain distance to avoid break of journey and then to get avail motorized vehiclesfor the rest of the journey. Bans in arterial road have created more pressure of rickshaws in the access roads connecting to that arterial roads. Going close to such intersections are also sometimes restricted by traffic police without any notice. So that it is uncertain to carry passenger for passing those inter sections and some time for this

reason *rickshaw-wallas* face harassment both from passenger and traffic police. Sometime traffic police gives chance to breach the ban by taking 'bribe' of Tk 5-10.

Participants think that effect of rickshaw bans are different for different people. One of them said tha the problem of the man or woman with shopping bags and luggage is not similar to a man going to his job. People with school going children are highly affected as well. Trip lengths increase for the same previous trips, but passengers do not want to give more fare for this reason.

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FGD E.7: Rickshaw garage at Shantibagh (near Bijoynogar)

Introduction

The focus group discussion at a rickshaw garage at Shantibag reflects on the rickshaw bans, rickshaw-wallas, garage owners and related politics. All the *rickshaw-wallas* have migrated from different parts of the country and they were agricultural labourers. But for the prospect of a good income from rickshaw pulling they have migrated to Dhaka and shifted to rickshaw pulling. In this garage *Joma* is Tk 120 for two shifts. A brief introduction to the participants is as follows:

	Duration in this garage (year)	**Duration of rickshaw pulling in Dhaka (year)**	**Duration of rickshaw pulling in life (year)**	**Home district**	**Is family living in Dhaka (Y/N)**	**Pedal whole day (2 shifts) or 1 shift?**	**Reason for choosing this garage**
1	2	8	8	Daudkandi, Comilla	N	1	New living place, No reason, we two have chosen it
2	2	8	8	Daudkandi, Comilla	N	1	
3	0.85	0.85	5.5	Mymensingh	N	1	Known to the owner
4	2	2		Rangpur	N	1	
5	4y	10		Rangpur	N	2	

General Discussion

In general discussion they pointed to the fact that rickshaw is very flexible mode, can provide door to door services as it is easily accessible to all people and places. It is very useful for urgent use as most of the time they find people from the long queues for bus hire rickshaws if they are in short of time. But the post ban experience is tough both for them and passengers. Plus often the behaviour of some passenger is very rude.

On an average 20 to 25 trips can be made in a shift that fetch Tk 300-350. Among the participants only one use to send money from Dhaka to his home village; others pull rickshaw 15 to 20 days and then went to villages with their money.

In general they try to take all types of passengers. But after the rickshaw ban they prefer to take long trips as they can charge comparatively more charge compared to pre-ban condition. They are less interested in very short trips; although fare is higher compared to distance, but it requires much negotiation with the passengers and in many cases passengers also prefer walking for short distances than hiring a rickshaw at higher fare. They also avoid going to those places where passengers are not available easily for a return trip. They also prefer not to go to the location where there is only one road opened for rickshaws, others are blocked, channelling all rickshaws in a single road and thus reducing probability to get passengers (as supply of rickshaws increases). Also after they prefer not take those routes trips on which ban imposed.

Bans have reduced their trip frequency. Plus no prior information about ban or restrictions often compels them to bargain with the traffic police or to pedal much extra miles then anticipated. In their opinion their income has reduced due of bans. But sometimes they make trips breaching the ban or using alternate long route which fetch them usually two times of the original fare. But bans do not affect their households' mobility as they do not live in Dhaka city.

They opined that the school going children and their parents are the worst victims; also people with heavy or more than luggage. One of them said "*it is very sad to see the guardians when they bargain with traffic police or have to quit the rickshaw in the banned point and walk with the school going little children. I have to take less money for the trips as they cannot provide them service to the school gates*". All of them think that without rickshaw the mobility in Dhaka will be seriously hampered. One of them said that rickshaw banning situation does not reduce traffic jam rather they have seen that traffic jam is increasing day by day.

The rickshaw garage owner's perspective

When found during the FGD the owners of the garage was very shortly interviewed. He said that he was little engaged in the local politics. He shared his experience that there was huge politics in the business and it is becoming complex day because of some organizations. He observed that rickshaws were still increasing after the ban.

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FGD E.8: Rickshaw garage at Adabor ring road (near Shyamoli)

Introduction

This focus group composed of rickshaw pullers who came to Dhaka from different rural areas of the country. They have shifted from various professions; but among the professions most of them shifted from agriculture. Still 57.14% of them (in the group) has seasonal change of occupation; they used to go to the villages during planting and harvesting seasons. One thing is notable; all of them left their families in villages, had to maintain multi-spatial households. In this garage *joma* for one shift is Tk. 50-60 and for two shifts Tk 120. Their brief introduction is as follows:

	Duration in this garage (year)	Duration of rickshaw pulling in Dhaka (year)	Duration of rickshaw pulling in life (year)	Home district	Is family living in Dhaka (Y/N)	If seasonal rickshaw-walla (Y/N)	Pedal whole day (2 shifts) or 1 shift?	Reason for choosing this garage
1	1.5	4y	4y	Barisal	N	N	2	Have common relative
2	0.5	0.5	0.5	Pirojpur	N	Y	2	Elder brother has relation
3	5	15	15	Barisal	N	N	1	Relative of the owner
4	1	1	1.5	Sariatpur	N	Y	2	Have common friend
5	6	6	8	Gopalganj	N	N	1	Have common relative
6	0.6	1.25	1.25	Pirojpur	N	Y	2	Have common relative
7	2	5	5	Chandpur	N	Y	2	Elder brother has relation

General Discussion

When the group is asked for comparing rickshaw with other mode; most of them told about its flexibility and accessibility. One told: "*this mode is like pedestrian; you can use it as you can walk. From one door to another you can easily reach. Rickshaw is also abundant in various point and they can be easily achievable. Besides; rickshaw can make multiple trips between one location to other and it is an easy mode to use, but this mode is slow than the motorised vehicles*". They also pointed to some disadvantages of rickshaw pulling. One told that "*it is an inhuman job. It is quite difficult to pull rickshaw all day. Sometimes it becomes a tough and problematic to negotiate fare. Sometimes the traffic police becomes very rude*".

On an average, in a single shift they can make 20-25 trips and earn Tk 450-500 tk. While for two shifts or whole day they can make around Tk 700. Due to rickshaw ban, some of them told, the longer trips became difficult and the frequency of longer trips also reduced as they had to travel more complicated network to reach a destination. But those *rickshaw-wallas* who used to make longer trips added that for such trips the fare is high and they required to make less number of trips to have the same earning. Like previous focus groups, this group also informed that morning passengers are mostly office goers and students. At noon total number of passengers decreases. While in evening there is rush of home going people. An important point was made Mr. AA, based on his experience in Shyamoli, that "d*ue to rickshaw ban in main road the school going children with parents cannot have door to school service now. So they have to come from home to Shyamoli by rickshaw, them cross the road and again have to hire another rickshaw. The breaks in journey increase the number of rickshaw trips; plus in many cases each of the broken trips cost passengers same money compared to previous single journey [i.e. they have to spend double now] But we can have more trips and more money. Such incidences are very common for trip makers from Shaymoli road number 2 to Mohammadpur".* Another rickshaw-walla was very candid saying that "রিক্সা বন্ধ করে

তো জাম কমে নাই, ত কি লাভ হইছে? লাভের লাভ আমাগো কিছু ভাড়া বাড়ছে আর লোকজনের ভগান্তি বাড়ছে" (in Bangla), translation: "Banning rickshaw has not reduced traffic congestion but adding problems to daily mobility and some addition to our income". Both the number of rickshaw and garage increased.

While discussing the problems due to bans, some of them pointed out that often they have to defy bans/restrictions as passengers insist either. So they had to look for ways to escape the "angry" traffic police. Mr E, a rickshaw puller**,** said that "*Sometimes we can only cross the road after giving small amount of money to the traffic police*". Besides, sudden change in ban/restriction by traffic police is another problem to them. If they find a new ban/restriction, they have to taket another route. But passengers are usually reluctant to give extra fare for the detouring.

When the group was asked about visiting their families and sending money to them, they expressed their sadness for living away from them. Some of them visit families frequently, and of course during planting and harvesting seasons. But for around 40% of the participants pedalling rickshaw in Dhaka is a permanent work; they visit their families in every three months. But around 60% of them send money weekly and rest take their earnings home when they go to villages.

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Appendix F

Table F.1: Proposed use of different roads in Dhaka

	Primary	Secondary	Connector	Local
Traffic Volume	high	medium-high	low-medium	low
Traffic Composition				
Through Traffic	yes	yes	no	no
Heavy trucks	yes	yes	preferably no	no
Light trucks	yes	yes	yes	yes
Buses	yes	yes	maybe	no
Minibuses	no	yes	yes	no
Tempos	no	maybe	yes	no
Autorickshaws	yes	yes	yes	yes
Rickshaws	no	maybe	yes	yes
Non motorised goods vehicles	no	maybe	yes	yes
Passenger cars	yes	yes	yes	yes
Parking1				
Peak Periods	no	no	yes	yes
Day-Off-Peak	no	preferably no	yes	yes
Night	maybe	maybe	yes	yes
Road Geometry				
No. of Lanes in each direction	3	2	2	1
Median	yes	maybe	no	no
Pedestrian paths	no	maybe	yes	maybe
Mid-block Control of Access	yes	some	no	no
Pedestrian Crossing				
Grade Separated	yes	no	no	no
At-Grade Controlled	yes	yes	maybe	no

Source: DITS, 1994a: 97

Table F.2: Distribution of the respondents based on response regarding consultation with the respondents or households by authority before making or executing the decision

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	2.9	2.9	2.9
	No	371	96.35	96.9	99.9
	Total	383	99.25	100.0	
	Missing System	2	.75		
	Total	385	100.0		

Source: Field survey, 2012

Table F.3: Distribution of the respondents based on their response to the question if the ban is contrary to respondents' or their households' mobility needs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	260	67.5	68.4	68.4
	No	120	31.2	31.6	100.0
	Total	380	98.7	100.0	
Missing	System	5	1.3		
Total		385	100.0		

Source: Field survey, 2012

Table F.4:Distribution of respondents based on Car-ownership and if ban is contrary to their or their households' mobility needs

		is the ban contrary to your/households' mobility needs		
		Yes	No	Total
Car_Own-ership	Yes	44	67	111
	No	213	53	266
Total		257	120	377
Missing				8

Source: Field survey, 2012

Table F.5: Distribution of the respondents based on the response to the question if the ban is unexpected to respondents or their households

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	288	74.8	76.0	76.0
	No	91	23.6	24.0	100.0
	Total	379	98.4	100.0	
Missing	System	6	1.6		
Total		385	100.0		

Source: Field survey, 2012

Table F.6: Distribution of respondents based on car-ownership and expectation of respondents or their households regarding the ban

		Is the ban unexpected?		
		Yes	No	Total
Car_Ownership	Yes	68	44	112
	No	218	46	264
Total		286	90	376

Source: Field survey, 2012

Table F.7: Distribution of the respondents based on their households income group and their agreement with the idea of ban and income group

		FINALLY do you agree with the idea of rick ban		
		Yes	No	Total
Hh Income _categories	Low (Below Tk. 20000/month)	4	11	15
	Medium (Tk 20000-49999/month)	45	122	167
	High (Tk.50000 and above)	67	96	163
Total		116	229	345

Source: Field survey, 2012

Table F.8: Distribution of the respondents based on car ownership and theiraAgreement with the idea of ban and restriction

		FINALLY do you agree with the idea of rick ban		
		Yes	No	Total
Car_Ownership	Yes	66	45	111
	No	53	209	262
Total		119	254	373

Source: Field survey, 2012

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Appendix F-1: News/report in the Daily Star

Wednesday, April 03, 2013

ENTRY TO BARIDHARA: Ban slapped on lungi clad rickshaw-pullers

Tawfique Ali

A lungi clad rickshaw-puller stopped at the entry of Baridhara in the capital yesterday. Security workers do not let rickshaw-pullers in lungi into the posh neighbourhood following instructions from the association of Baridhara home owners. Photo: Star

Rickshaw-pullers in traditional Bangalee outfit, lungi, are barred from entering the capital's Baridhara, one of the country's most posh neighbourhoods where diplomats and affluent people live. Baridhara home owners' association, Baridhara Society, has instructed security personnel not to let in rickshaw-pullers in lungi, requiring them to be in trousers to enter Baridhara, particularly Block K, said security men and local commuters.

As The Daily Star correspondent arrived at the lakeside entry of Baridhara at 11:45am yesterday, he found that the security man on duty Abdul Kader had stopped a rickshaw- puller for wearing lungi and forced the two passengers on board to get down.

One of the passengers, Nasir Uddin Ahmed, who is manager of a private company in Baridhara, said, “Dictating a person’s clothing is an infringement upon an individual’s personal liberty and right.” Meanwhile, Kader intercepted several more rickshaw-pullers but let in a score of others in lungi, as the passengers defied his instruction.

A good many rickshaw-pullers were found entering the neighbourhood in trousers without facing any hassle. Talking to The Daily Star, Kader said, “The society issued the instruction about two months back.” The society president Firoz Hasan said, “We just wanted the rickshaw- pullers to put on decent clothes and did not issue any ban on lungi.” But barring rickshaw-pullers in lungi might have occurred in one or two cases, he said. “We will look into it.” Adilur Rahman Khan, secretary of the rights group Odhikar, said such restrictions amount to a violation of cultural, constitutional and human rights of an individual.

There are nearly 500 houses of which around 130 are occupied by diplomatic missions in Baridhara K Block between Progoti Sarani and Baridhara Lake, with Kalachandpur to the north and Mariam Tower to the south.

Source: http://www.thedailystar.net/beta2/news/ban-slapped-on-lungi-clad-rickshaw-pullers/

Accessed on 12th April 2013

Appendix G: Photographs .

If not mentioned otherwise all the photos are taken by the author during the field work

a. Theme: Rickshaws- the most widely used transport mode in Dhaka

For women and children rickshaws are a common and easily available mode of transport. Courtesy: The Daily Mail, 24th September, 2011, in http://www.dailymail.co.uk/news/article-2041149/Bangladeshs-rickshaw-graveyard-Thousands-traditional-taxis-piled-high.html

Although rickshaws are banned in major roads, they are many in numbers in secondary roads

b. Theme: Rickshaws are now banned and restricted in several roads Dhaka

Sign borads are put on the roads along with traffic police to restrict ricksahws entering the road near Shukrabad

Passenger has to get down from the rickshaw and break the journey

New rickshaw journey for a school girl and her mother starts from the minor or access roads; an old weak lady and her relative are waiting for another rickshaw

Dhaka Metropolitan Police has started a drive to seize illegal rickshaws plying the city streets. The photo was taken from Rajarbagh area yesterday. PHOTO: STAR

Courtesy: The Daily Star, 011 21st July, 2011

Thousand rickshaws are dumped in Mirpur, Dhaka
Courtesy: Courtesy: The Daily Mail, 24th September, 2011

c. Theme: 'Number plate' provided by different rockshaw associations are fixed at the back of rickshaws

Rickshaw number plate issued by Rickshaw and Van Owners Federation

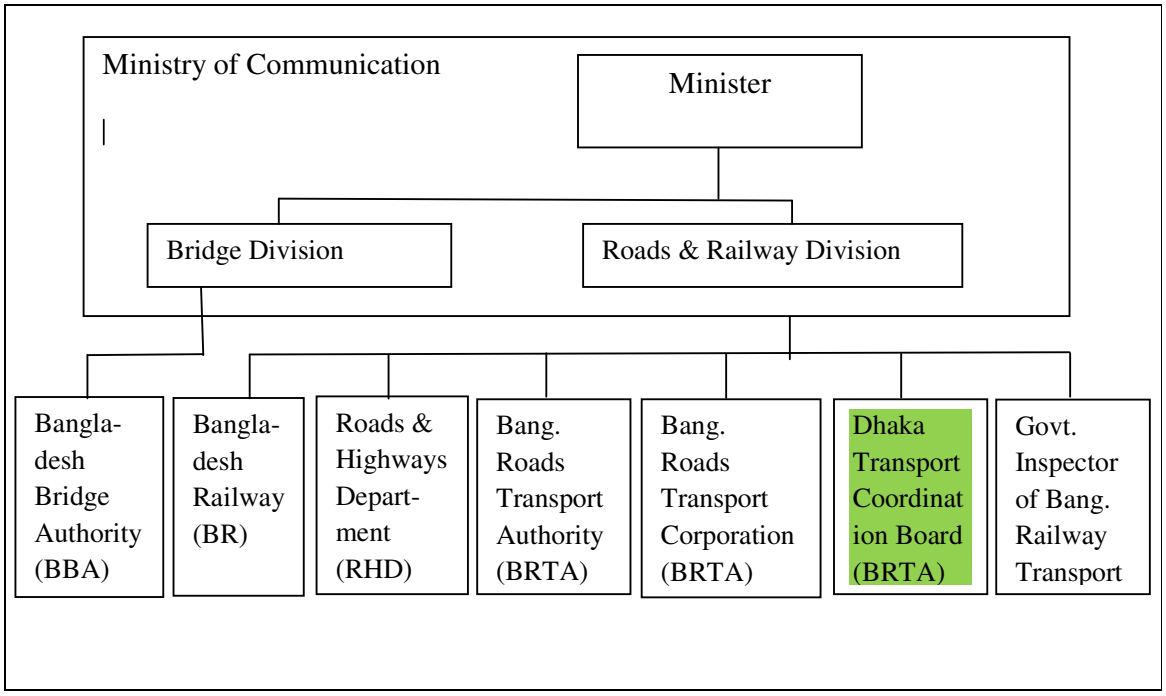
Rickshaw number plate issued by Freedom-fighters welfare association

Rickshaw number plate issued by Dhaka City Corporation Rickshaw Owners' Association. This number plate says that although the rickshaw does not have any valid license, traffic police should not seize it as a court case is petitioned by the association seeking temporary right for its movement on the Dhaka road

Appendix H: Organogram of relevant government bodies .

DCC, DMP, DTCB/Ministry of Communication are directly relevant to rickshaw movement (or ban/restriction) in Dhaka. Their organogram (in fact, only relevant vertical/horizontal relationship with other bodies/office bearers) shown below.

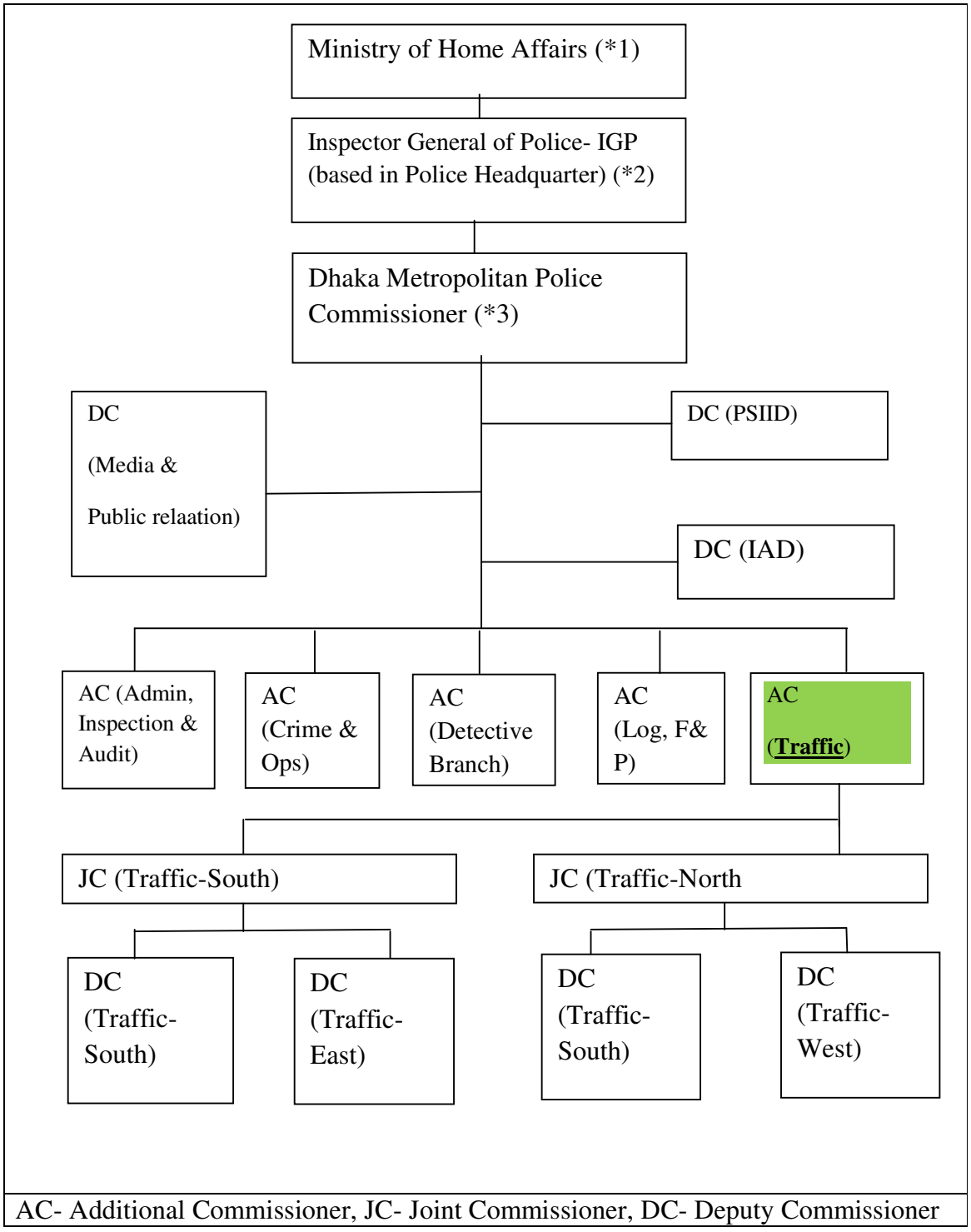
a. Relationship of different divisions and authorities under ministry of communication



Source: JICA, 2010: 7-2

b. Organogram of Dhaka Metropolitan Police (DMP)and its vertical linkage with ministry

Only traffic related components and their upward linkage upto ministry of central government is shown



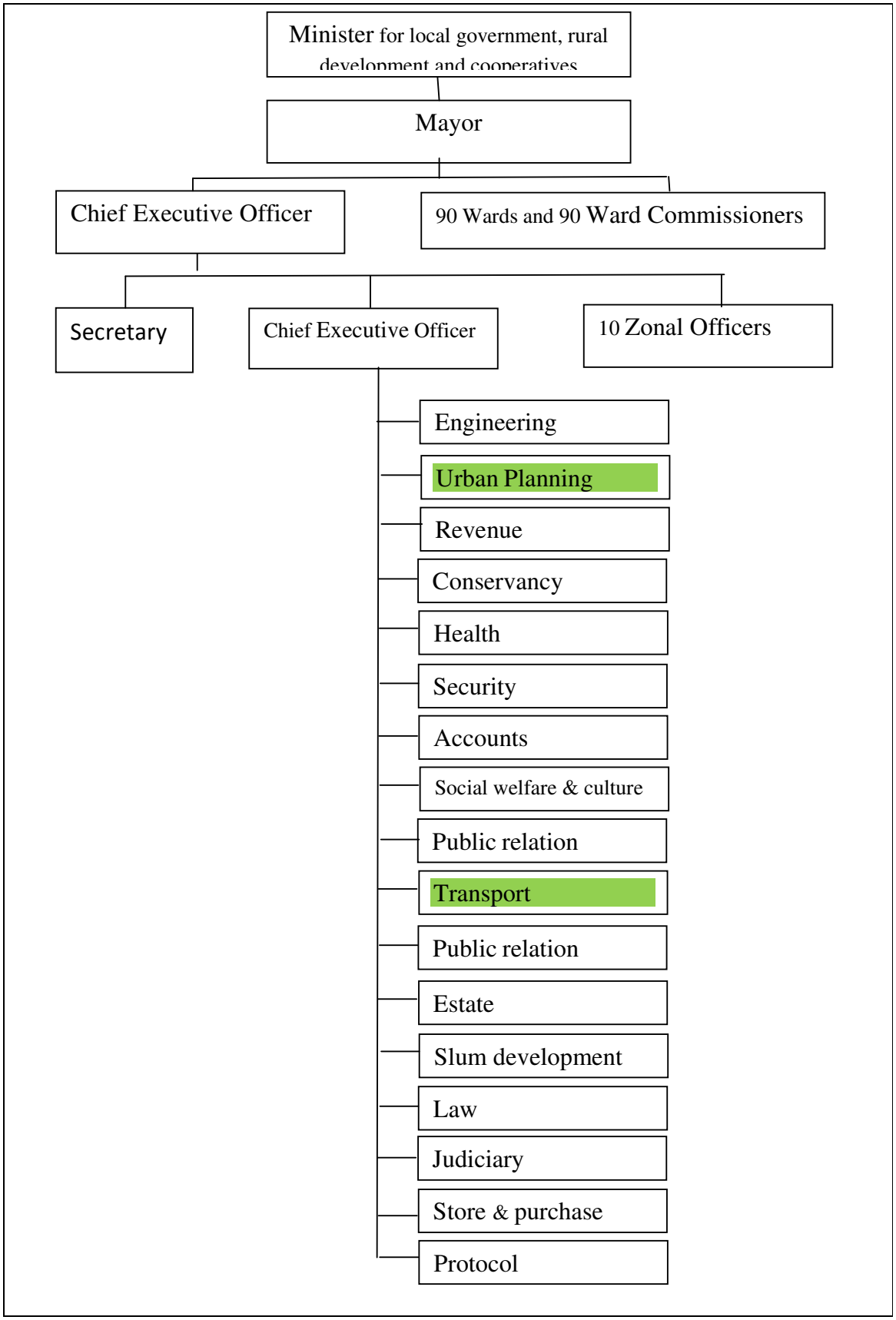
AC- Additional Commissioner, JC- Joint Commissioner, DC- Deputy Commissioner

Sources: (*1) http://www.police.gov.bd/history.php?id=51

(*2)http://www.police.gov.bd/BdpoliceOrgr.php?id=258;

(*3) http://www.dmp.gov.bd/dmpuploads/files/organo_dmp.jpg

c. Organogram of DCC and its vertical linkage with ministry



Source: JICA, 2010: 7-17